The Builder.

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ILLUSTRATIONS.

New Buildings for the Royal College of Science, South Kensington.—Mr. Aston Webb, A.R.A., Architect ..... *Extra Large-Page Photo-Litho.*
New Government Offices, Great George-street: the Circular Court.—Mr. J. M. Brydon, F.R.I.B.A., Architect ..... *Extra Large-Page Ink-Photo.*
New Buildings for the Royal College of Science, South Kensington: Plans.—Mr. Aston Webb, A.R.A., Architect ..... *Single-Page Photo-Litho.*
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Architecture at the Royal Academy.

TAKEN as a whole, the show of drawings in the architectural room this year is a very good one; it includes a considerable number of interesting drawings illustrating works of a good deal of character, and though there are some things which may be called eccentric, either in regard to drawing or design, there is hardly anything that can be called mere commonplace; no large drawings of railway hotels or houses in flats, the work of surveyors rather than architects, such as have sometimes occupied such a disproportionate space on the walls; and this is wherefore to be thankful.

The recent introduction of models as a feature in the exhibition is kept up this year by the presence of three models, of which the most important is that of an "Inner hall of a Country Mansion," by Mr. William Young. The model has not been very well put together, since the front screen of it has to some extent parted company with the rest; and this portion of the model, consisting of an arcade separating the outer from the inner hall, does not agree with the plan affixed, which shows circular columns, whereas the model shows oblong piers with a half-column on the inner face. The inner hall, which is the main subject of the illustration, is a square apartment with a dome over it, and with a semi-circular apse at the further side; the large recessed arches to right and left of the main compartment are cut across by a balustraded gallery; at the back of one of them is a fireplace. The architecture contains nothing new in detail; it is an application of the ordinary materials of classic architecture, but the whole would be a fine and palatial bit of interior, and the model certainly shows its effect in a more interesting manner than any drawing would. At the other end of the room Mr. George Murray exhibits a model of a dome pendentive with a decorative design, "St. Matthew," for execution in mosaic; this is rather decoration than architecture, but finds its right place in the architectural room. The painting shows a seated figure of St. Matthew, in dark red drapery, supported (as they say in heraldry) by an angel in drapery of a lighter red; the upper portion of the figures is cut out against a gold ground. The decorative design of the border is graceful and rather novel. The remaining stand carries two models of small houses. One is a very well executed model of a cottage, which we gather is made by the exhibitor, Mr. Lionel F. Crane; as a design it is rather too much a repetition of features which have lately become a fashion—rough-cast walls and sloped buttresses, and high red-tiled roofs; it is like a great many other designs for small houses made recently, and neither better nor worse, only the whole style strikes us as a kind of contrived assumption of the picturesque. The other model, of Rushmere Lodge, near Ipswich, exhibited by Mr. Charles Spooner, is a card model painted, and is chiefly interesting on account of the plan, which shows a very good remodelling and enlarging of an older building.

The most important works of public architecture illustrated are shown in the two drawings reproduced in our present issue—Mr. Aston Webb's "Royal College of Science" (1866) and Mr. Brydon's "Circular Court, New Government Offices," which latter, as representing one of the most important new national buildings of the day, and being also an exceptionally good perspective drawing, might have claimed a more central place in the hanging. We regret that no plan is given with it, as the placing of this circular court in reference to the rest of the building and to the adjacent Government buildings is an important point in connexion with its architectural design. Mr. Webb has not only given plans of his building, but also a block plan showing its position in connexion with the rest of the large group of buildings situated between Prince's Gate and Queen's Gate; these are placed in the same frame with the elevation and perspective drawing, but will be found on another sheet in our illustrations, as we received the drawings separately and not in the frame. In the ground story the series of arched labels over the windows, nearly abutting on each other, have rather too crowded a look to our thinking; the treatment of the upper portion, with the columns intercepting the string-course over the windows, is very graceful, and the plain wall spaces left above the windows have a value in the design. The plan shows the fine effect of grouping proposed in connexion with the opposite façade of the Imperial Institute, with the circular central space with a monument, and a portico or arcade forming an entrance screen to the road at each end. When this is carried out the whole will make a fine and stately piece of architectural effect. Mr. Brydon's circular court is notable for the simplicity of treatment of the rusticated basement—a simplicity which we entirely sympathise with; as shown in the drawing, the order above strikes us being a little too low in proportion to the basement; this may be the effect of the drawing, but otherwise we would suggest as a point for consideration whether the upper portion of the design should not be slightly higher in proportion to the basement. A very little would do it.

Next to these perhaps the most important exhibit is that by Mr. Belcher, the general elevation and detail elevation of his fine building for the Eastern Telegraph Company. The façade is an excellent example of dignity and architectural symmetry combined with a picturesque effect, obtained not by cutting up the building in an unexpected manner, but by the introduction of symbolic sculpture and other details which give a distinct character to the building; the small bronze genii on the spheres, for instance, above the cornice in the recessed portion of the front, and the crowning of the cupola with an armillary sphere, a detail which in itself suggests associations connected with electric cables and electricity. The French are very good at giving special character to a building for a special purpose, but we do not know that they ever do it better than this, and they are apt to be more florid in

detail, whereas everything here is sober and restrained in style. The wide gaping shop windows on the ground story, we suppose, cannot be helped, but they injure the design very much. The large detail elevation, with the contour of plan of the principal features given on it, is a kind of drawing we wish to see more of in the architectural room; the only objection is that, considering the limited size of the architectural room, if we had many drawings on this scale there would be room for but few exhibitors; an additional reason why the Academy should be urged to enlarge the space for architectural exhibits. English architects who go to the Salon for the first time are usually astonished at the scale and the extraordinary elaboration of the French architectural drawings, which in this sense are far beyond anything we are accustomed to here; but it is of no use to try to emulate them, because at Burlington House there would be no space to hang such drawings.

Mr. T. G. Jackson's contribution consists, as usual, of a perspective drawing of modest proportions and unpretending style, representing certain new buildings for the University of Cambridge (1690), the central one being the "Squire Library," which is treated in that collegiate style and feeling which this architect has so completely assimilated. A small order of columns adorns the ground story, through which there is a triple arcaded entrance into the space (whatever it is) in the rear of the façade; the upper portion shows a series of projecting bays, the façade being stopped by a semi-octagonal turret at each end. The whole expression of the building is just what suits the place and its object. On the frieze above the order in the ground story is seen the rather curious inscription "Hinc lucem et pocula sacra," we presume an old college motto, and that *pocula* here means not "cups" but "draughts" (which is a secondary meaning) — draughts from the fountain of Helicon.

The only other R.A. who exhibits in the architectural room, Mr. Norman Shaw, shows, in conjunction with Messrs. Willink & Thicknesse, of Liverpool, a remarkably fine drawing of the new Parr's Bank in Liverpool (1798). This shows a two-storied basement (or rather one story and a mezzanine) apparently in granite, the walls above treated in white surfaces with darker bands, of what material is not obvious; the window-dressings are of red brick or terra-cotta, which tells remarkably well in contrast with the black and white of the rest of the walls. A strongly marked modillion cornice of considerable projection crowns the whole, an excellent example of a business street building which has character and dignity without departing from simplicity.

Mr. Collcutt's building for Lloyd's Register, Fenchurch-street, illustrated in three drawings, is also a fine piece of street architecture, though of a very different and more classic type. The elevation to Fenchurch-street (1780) shows a ground story with rusticated piers, a first floor story with an Ionic order, and an attic with strongly rusticated pilasters or piers. On the ground story bas-relief sculpture is introduced in the spandrils of the arches between the columns, which sympathetically lay aside their rustication at the level where the sculpture commences; a nice little point in the design. The elevation to Lloyd's Avenue is of the same character. We do not know whether the design is improved by the projecting turrets at the angles, which stand out rather abruptly. The upper portion of the angle of the building is shown in perspective in a very effective drawing (1766), which in the hanging has been allowed to be too far divorced from the elevations with which it is connected.

Among the more prominent drawings Mr. Prior's design for "The Medical Schools, Cambridge" (1689), is of considerable interest and originality. There is unfortunately no plan. The perspective view shows a building very plainly treated, almost entirely of rusticated masonry, with three slightly projecting features finished with a curve on each side and a small pediment in the centre. Between these the line of the parapet is broken by a small curved *fronton*, beneath which is a panel with a bas-relief. The design is stopped at the left-hand end by a heavy piece of rusticated masonry ending in a curved gablet. The only feature we do not like is the flat and rather ungainly corbel beneath the principal windows in the two end pavilions; (the centre one is differently treated). But this is a front which, though very flat and almost bald in general treatment, is like no other building, and may be called an original architectural conception.

Mr. Mervyn Macartney exhibits a very large detail elevation of part of a "Competitive Design for a Public Building" (1798), which we take to be one of his drawings for a large competition for a public building some years ago. The materials of the design, as far as detail is concerned, are of the ordinary type of late English Renaissance, but the drawing is a very powerful one, and shows how much effect may be produced by the judicious employment of rustication, that source of architectural expression which Ruskin scoffed at in so uncompromising a manner. The ground story is treated with very strong and bold rustication, the second story with a somewhat more subdued application of the same decree; the upper story alone is plain masonry. The drawing is very effectively tinted and shadowed, and was quite worth exhibiting, though we imagine it belongs to a competition of some time back.

We should mention also, among the leading drawings, the interior of the Moot Hall at Colchester by Mr. Belcher (1,817), a room with a semi-circular ceiling carried on an order of coupled columns at the sides, which however are partly recessed behind the main wall line, so as to appear to carry a solid architrave, and the cornice has only a slight break over them, instead of the mass of projection, with nothing over it except an unnecessary statue, which we too often see as the finish to engaged columns. Mr. John S. Babb's two friezes of figures in light cream tone on a red ground, illustrating the "Attic Months" (1799, 1819), form the most important example of decorative design, and certainly have a very decorative effect on the room, being hung as they are along the top of the line of drawings, on each side of the centre of the long wall. Another drawing deserves special mention as something rather out of the usual line, the "Ideal Town to the entrance of the proposed submarine English and French tunnel" (1867), which we thought had by this time ceased to be "proposed." It is by Herr Jan Kotéra, apparently a Bohemian architect, as he dates from Prague; it is however more French than anything else in style and idea, and is in fact just the kind of thing we are accustomed to see at the Salon, only on about four times the scale of this drawing. It is not an ideal "town," in the usual sense of the word, but a kind of pompous architectural frontispiece to the entrance to the tunnel; it is intended for the French end of the "proposed" tunnel, and we should imagine that the author had at one time, at all events, gone through the Ecole des Beaux-Arts course of study. It is a conception on paper only, for it could never be carried out, and though ambitious enough in conception, is too odd and eccentric in detail to be admired here at all events; it may suit French tastes better.

The drawings named above include the largest and most important of the year, but there is plenty of interest in many of the others, to which we shall return. The general impression produced is that at present there is among English architects a good deal of real effort at originality, at new treatment of old materials, in many cases with very good results, and suggesting that architectural conception is not so finite a thing as the mass of every-day buildings would sometimes tempt one to think.

NOTES.

The Name of the New Street.

WE print on another page a letter from a Fellow of the Society of Antiquaries in regard to the naming of the new street from Holborn to the Strand, not because we agree with it, but because it is amusing, and it illustrates one view as to the naming of streets which may be called emphatically the antiquarian's view, and which perhaps has a claim to be represented in any discussion of the subject. Mr. F. Davis appears to think that because there is a historic topographical interest in the old names of streets which indicate their original condition or circumstances—such as Coleman-street, Milk-street, Horseferry-road, &c., therefore we ought to abide by this principle for the sake of future students of London topography; and that the naming of streets in commemoration of eminent men or great events is a puerile fashion. Most persons will we hope concur with us in the opposite view—that the naming of streets after some merely local circumstance represents the habit of a half-civilised society, and indicates an absence of great ideas and wide interests. Would Mr. Davis really prefer that Waterloo Bridge should be called "South-Western Railway Bridge"? We may observe that the French, since the commencement of the century, have adopted in the main the system of calling the streets of their capital after great names and great events. To take only the military ones—what associations are awakened by the names of Avenue d'Iena, Pont d'Austerlitz, Avenue Hoche, Avenue Kléber, Avenue Marceau, Boulevarde Lannes, Avenue de la Grande Armée, &c., &c. Many people hardly remember the fact that our great possession, India, was at first and for years hotly contested with the French; but Avenue de La Bourdonnais (as it should be spelt), which thousands of English people will walk or drive down this year, serves to keep in memory the name of the greatest Frenchman who opposed us in

India, as well as the ungrateful treatment he received at the time from his own country. If French ideas on these subjects ruled in London, there would be little doubt that our new street, if made just now, would be "Avenue Roberts." For our own part, we keep to the suggestion we have already made, that the street be called "Gordon Avenue," in commemoration of the noblest Englishman of our time, and as a practical reply to the late poet-laureate's trenchant question—"Have we forgotten Gordon?"

The Paris Exhibition Disaster.

WE give, in our "Letter from Paris," what information is at present available in regard to the construction of the bridge the fall of which caused the fatal accident last Sunday in connexion with the Paris Exhibition. The bridge, it must be remembered, was not an Exhibition structure, but was put up by the proprietors of the "Globe Celeste" to form an easy access to their show from the Exhibition. It is perfectly clear that the central span of the bridge, measuring nearly 60 ft. in length, 15 ft. in width, and mainly formed of concrete, 8 in. thick, collapsed immediately the last temporary support had been knocked away. As rupture is said to have occurred at the very point where a beam of insufficient strength would naturally break by its own weight, only one conclusion can be drawn as to the cause of the disaster. More than one Press reference has been made, implying that the bridge was considered unsafe because the cement had not completely set. From this it might be inferred that faith in the transverse strength of concrete is more fully developed in Paris than in this country, but at the present moment we really have no proper data upon which criticism may fairly be based. Parisians appear to regard the disaster as the direct result of hasty jerry-building, and to doubt the safety of other structures connected with the Exhibition; the *Figaro* attributes the accident to inexperience on the part of the architect; and the builders blame the authorities for insisting on so wide a span. Such a stipulation as the last-named certainly affords no excuse for persisting in the erection of the bridge, if it had been designed for less onerous conditions. The whole matter will, of course, form the subject of searching inquiry, which may advantageously be extended to all other erections in and connected with the Exhibition, so that the confidence of the public may be in some measure restored.

The Ottawa Fire.

THERE is little to be said in regard to the Ottawa fire beyond pointing out that it is simply the case of Chicago over again. Given a city largely built of timber, an accidental fire started somewhere and a good wind blowing to spread and carry it along, and the catastrophe is just what might be expected. Chicago learned its lesson, and discarded timber building. From an ominous sentence in the *Times* foreign news page, it seems doubtful whether the Ottawa people are following their example. We read that "rebuilding operations have been commenced on a small scale, but the work is greatly retarded for want of lumber," *i.e.* timber in balk, all the stock of which has been burned. It would appear from this that the Ottawa people are only waiting to replace their stock of "lumber" in order to build again in the same way as before—in other words, to prepare for another conflagration.

Additions to the Law Courts.

IT has been stated in the daily press somewhat prominently that plans have been passed for four new courts to be erected in the gardens at the west side of the Courts of Justice. One new court is required for the additional Chancery judge who was lately appointed, but we have reason to believe that this court will be placed in the existing building at the north-west angle; in other words, at the west end of the corridor which connects the main court corridors, which run north and south on either side of the Central Hall. It would be regrettable to occupy the space at the west side of the Courts of Justice. Though marked by many practical inconveniences, it is one of the finest modern buildings in London, and deserves not to be crowded by other buildings. There is no doubt that it would be a great public improvement if the buildings between Bell-yard and Chancery-lane were demolished, and a broad thoroughfare substituted. Moreover, if a block of Law Courts is to be erected on the west side of the Courts of Justice, they should be entrusted to a first-rate architect, so that they would be in harmony with the main building. But there does not seem to be any need for four new courts, and any large scheme of this kind appears very improbable at the present time. Even, however, if one new court is added, this should not prevent further practical improvements in the existing Law Courts. The electric light should be placed in every part of the building, and the heating system should be extended to all the corridors.

Electric Power Transmission.

PROFESSOR GEORGE FORBES, F.R.S., read last week to the Institution of Electrical Engineers a most interesting paper on "Distant Electric Power Transmission." He described several transmission lines which are in actual operation, and gave details of the working of the plant at Niagara Falls, which will be very useful to electricians. In South California power is transmitted from a waterfall at the San Bernandino mountains to Los Angelos, a distance of eighty miles, at a pressure of 33,000 volts. Again, at the Snoqualmie Falls power is transmitted to Seattle and Tacoma, at distances of thirty miles from the station, by means of aluminium mains at a pressure of 40,000 volts. Nearly seventy tons of aluminium are used, and it is showing no signs of deterioration, although it has been exposed in the open air for over two years. Professor Forbes suggests that aluminium conductors should be painted or varnished. This would get over the risk of oxidisation. The weight of aluminium is almost exactly one-half of that of copper required to carry the same current. This is a great advantage in places like Central Africa, where the cost of transport is enormous. The diameter of an aluminium main is 28 per cent. greater than that of a copper one, hence it is more exposed to wind pressure and its strength is not so great. On the other hand, with the very high pressures used in power transmission schemes, the brush discharge from the wires when fully charged becomes very troublesome, and is much greater from copper mains owing to their smaller diameter. Hence it seems probable that aluminium will be soon largly used for electric purposes. In the subsequent discussion references were made to the five important power Bills which are being considered by a joint Parliamentary Committee this week, and it was obvious that members were very anxious that they should pass, so that this country might follow the lead of many other countries where private enterprise has created new industries and revolutionised old ones by providing cheap power. Capitalists in America as far back as 1890 undertook to utilise Niagara Falls, and the works designed by Professor Forbes have proved a commercial and engineering success. Surely establishing power stations near the mouth of coal pits and transmitting power to our busy manufacturing centres is a much less risky operation in 1900.

Farm-street Church, Mayfair.

IT is stated that a sum of nearly 15,000*l.* is to be expended upon the enlargement, which will include a new aisle, of the Church of the Immaculate Conception in Farm-street, to be carried out after Mr. Romaine-Walker's plans and designs. The church, which is the first that has belonged in London to the Order of Jesuits, was originally built after the designs of J. J. Scoles, and was opened in 1849. The Chapel of the Blessed Sacrament was added by Clutton, in 1858-9. The high altar, presented by Miss Monica Tempest, of Broughton Hall, Yorkshire, at a cost of about 1,000*l.*, was designed by A. W. Pugin; the east window, above, being by Mr. Wailes. The south front of the church, which is built after the early fourteenth century style, is supposed to be based upon the south front of Beauvais Cathedral. The designs for the residence, adjoining the church, for the Jesuit Fathers, were made by Messrs. Goldie, Child & Goldie, whose original designs (modified in the building), are illustrated, with a plan, in our columns of July 10, 1886.

Society of Water-colours.

THE exhibition of the Society of Painters in Water-colours is a very strong one in regard to landscapes, which of course occupy far the larger proportion of the space. One of the finest and most effective works we have seen there for some time is Mr. Eyre Walker's "At the Back of the Thundercloud" (173), showing the sun-lighted mass of an immense pile of clouds which have passed over, carrying the thunderstorm in front of them. The same artist exhibits a fine and richly coloured study under the title "Deepening Shadows—Ashdown Forest" (6), an effective contrast to Mr. Gregory's bright drawing, full of detail, "Birches in May" (3), hung near it; the two form not a bad illustration of the wide diversities of treatment and style possible within the proper limits of landscape painting. Mr. Philip builds up a fine Highland landscape, "Corrie Glas, Argyllshire" (37), in his usual broadly washed style of execution. Mr. Albert Goodwin's "Lincoln" (15) is his best work, but in this and much more in other city views by him he is getting too far in the direction of an overwrought delicacy of treatment and colour which makes his pictures look more like dream cities than real ones. In "The Hunt Ball" (14) Mr. Tom Lloyd shows a snow scene with the

lighted mansion in the background, and has had the humour of introducing a fox, the object of the hunt, in the foreground, playing his own part in the festivity. Mr. Wilmot Pilsbury's works, according to their own standard, are as good as ever, "Birches and Gorse" and "Sunny Noon" (204, 208) especially; this is a somewhat mechanical art, but it is at all events carried out with the most conscientious care and finish. His "Autumn in the Wood" (112) and Mr. Waterlow's "A Farm in Provence" (109) form, again, an instructive contrast in regard to the manner in which landscape may be treated in water-colour; but the last-named work is the better art. Among other landscapes to be noted are Mr. Gregory's beautiful woodland scene "A Choir Invisible" (97), Mr. Hemy's "A Pull to Windward" (24); Mr. R. W. Allan's "Toil and Sunshine" (130), in which however the sea is not the best part; Mrs. Allingham's "A Home Farm, Isle of Wight" (136), a work in her best style; Mr. A. Goodwin's "Rye in the Drought of Summer" (147); and Mrs. Allingham's "A Kentish Garden" and "A Farmyard Corner" (152, 158). Of architectural subjects (besides Mr. Albert Goodwin's) there are several, among which Mr. Rooke's "Western Porches, Bourges" (196) and "Lady Chapel and Apse, Bourges" (199) are exceptionally forcible and solid in effect; Mr. Marshall's "Amiens" (57) wants exactly that character of solidity, it is too washy in effect for an architectural subject, and is not one of his best. Mr. Goodall's "St Paul's from Bankside" (93) shows the lantern on the dome painfully crooked, a matter to which artists are often not sufficiently attentive in treating architectural subjects. Mr. Hodson's large work, "Public Supping at Christ's Hospital" (66) is a very highly finished study of a crowd of figures and faces, but does not otherwise interest us very much. He has made a good architectural study of "The Oldest Part of the Bluecoat School," the first drawing in the catalogue.

Minor Exhibitions.

AT the Society of Fine Arts is a most interesting collection of pencil drawings by Sir John Tenniel made for cartoons in *Punch*, among which one meets with pleasure many designs which are like old friends. Part of the interest of the exhibition consists in the illustration it affords of the artist's method of working, in cleanly drawn and finely shaded pencil work, in which medium his work is seen to greater advantage than in the engravings. At the same gallery is a small collection of pastel portraits by Mr. Charles M. Horsfall, noticeable chiefly for a good deal of vigour in the rendering of the facial expression; generally speaking the colour is rather crude in effect, but the portrait of an elderly lady (No. 13), in grey dress with lace, has a more refined and artistic effect. At Messrs. Dowdeswell's Gallery Mr. Jungmann exhibits a second collection of his rather eccentric but clever studies of Dutch figures, in a style which looks as if the various portions were cut out and inlaid, rather than painted; it is a doubtful form of art, notwithstanding the ability shown in the pictures.

The late M. Munkacsy.

THE death of Munkacsy, at the age of fifty-six, removes from us an artist who gained a great fame rather in the popular world than in the world of art. He had great abilities, but of a somewhat superficial character, and there was a want of seriousness in his work, which his great facility of execution did not atone for. Among his most decided successes were some of his *genre* pictures of upper-class life, such as that of a nurse and children in the drawing-room (we forget the title) exhibited at the Academy some years ago, in which the character of the children was delightfully given, and the whole executed with a brilliancy of effect which took the eye, notwithstanding a suspicion of *chic*. In his large painting of "Christ Before Pilate" he obviously laid himself out, like Doré, to catch the religious public, and succeeded; the work is theatrical, but the figure of Pilate, as the Roman official cold and unmoved amid the clamour, and seeming merely to want to know what the prisoner had to say, was no doubt a remarkable conception. The picture was purchased by an American for 20,000*l*., but it will not long continue to hold that value in the art-market.

LETTER FROM PARIS.

THE exact causes of the fall of the footbridge at the Exhibition, which caused the death of nine persons on Sunday afternoon last, are not as yet known, but a strict inquiry is being made in order to establish the responsibilities and the causes which led to the catastrophe. This footbridge, which had not yet been opened to the public, was specially erected by the proprietors of the Globe Celeste, an immense spherical construction just outside the grounds of the Exhibition, in order to allow direct passage to visitors from the Exhibition grounds across the Avenue Suffren to the above outside show. The footbridge, constructed of a system of armed cement called "system Mattrai," composed of a network of slight iron rods and bars embedded in cement, was raised 23 ft. above the roadway beneath, with a width of 18 ft. and a total span of somewhat over 300 ft., supported by intermediary pillars formed of vertical iron rods embedded in cement. A portion of the bridge had already been deprived of its centering and a workman was proceeding to take away the remaining portion of the centering when the collapse occurred, the first intimation of the impending fall taking place by a sudden rift at the end of the bridge from which the centering had not been removed, the fall of the whole mass taking place several seconds after. The collapse may be attributed to several possible reasons: an error in the calculations of the resistance of the network of iron when designing the work; a defect in the system (which, however, has been rather largely and successfully employed before for similar work); a sudden subsidence in the ground owing to excavating work going on around the bridge, or again, and most probably the real reason, bad workmanship and faulty materials, an undue haste in putting the iron rods together and in mixing and applying the cement in which the rods were embedded, for the whole strength of these systems of armed cement consists in the quality of the materials and the very careful mixing and applying the cement to the iron so as to secure cohesion between the two materials. The Exhibition authorities repudiate all idea of responsibility on their side, the footbridge in this case being out of the grounds of the Exhibition, and, therefore, until the moment of its testing and acceptation by them as being fit for the use of the Exhibition public, outside their inspection. The bridge was to have been tested by the authorities on the day after the accident, and it was for this reason that the centering was being taken down, possibly with undue haste, for the cementing work had only very recently been finished. The test to have been applied would have been 800 kilogrammes per square metre. The responsibility appears to fall either on the architect of the Globe Celeste, M. Galeron, who also designed the bridge, or on the contractor, for defective construction or employment of bad materials or defective work; but for all concerned it is a most serious matter. The accident, sad as it is, has its useful side, for it is raising a sudden and strict inquiry into the solidity of the rest of the work in the Exhibition, some of which may possibly leave much to be desired; all the buildings and constructions which give any doubt as to their solidity will be carefully examined and tested, so it may be hoped that the sad accident of Sunday will be the first and the last of the serious ones. The death of four workmen caused by the fall of a scaffolding in the Salle des Fêtes on Monday has added much to the panic which for the moment has seized the public, but this accident is almost certainly due to carelessness on the part of the workmen themselves, by fixing their scaffolding in an insecure manner.

The two Palaces of Fine Arts in the Champs Elysées were inaugurated on Tuesday last by the President of the Republic. The smaller Palace now contains a large portion of the exhibits of retrospective French art, sculpture, painting, tapestry, bronzes, jewellery, &c.; the ground floor of the larger palace contains the centennial exhibition of French sculpture, the most important works which, from the commencement of the century, have figured in the various Salons; a large portion is reserved for the works of foreign artists. The first floor galleries already contain a certain number of works of painting of French and foreign artists.

The chapel in the Rue Goujon, commemorative of the catastrophe of the Charity Bazaar, was opened to a select number of visitors on Tuesday last. The monument, the work of a quite young architect, M. A. Guilbert, who has certainly given himself heart and soul to the work, is charming in design and sentiment, and the artists who have decorated the interior have shown much poetic feeling and delicate tact in their work of homage to the unfortunate victims of the fire. The fine statue of the Virgin Mary, "Mère des Douleurs," placed on the summit of the dome, is the work of M. Horace Daillon, sculptor, and is formed of wrought copper. The interior is exceedingly rich as regards the materials employed, the effect of the columns and urns of white and black marble is calm and dignified. The four figures representing Destiny, Death, Resurrection, and Reward, are the work of M. Hiolin, sculptor. The Chemin de la Croix leading out from the chapel, and formed of marble columns and "stations" of old silver, with ceiling panels decorated with garlands of leaves and flowers, is sumptuous, but at the same time calm and unobtrusive. In the vestibules are marble slabs relating the names of the victims of the catastrophe, set out without any regard to the order of rank or position of the unfortunates. The figure of the Virgin Mary, nearly 20 ft. high, standing behind the altar in the chapel, is also the work of M. Daillon. The artist has clothed the Virgin, the "Mère des Affligés," in a perfectly simple and very modern style, with a shawl draped across her shoulders. The face is that of an aged woman, lined with grief and tears, showing her agony at the loss of her loved ones, but yet seeming to accept the sacrifice with sublime heroism. This work of M. Daillon is a very fine one, although its colossal size interferes with the architectural scale of the interior.

The interior decoration of the dome is due to M. Albert Maignan, the well-known painter. The lower portion of the dome is coloured so as to delicately recall, by the slight suggestion of a few tongues of flame, the circumstances of the death of the victims; a little higher the colouring blends into a soft golden hue almost like the reflection of a hidden light beyond; in the glow of this light is the figure of the Virgin presenting to her Son the Martyrs of Charity. Amongst these are discreetly sketched portraits of some of the victims — the Duchesse d'Alençon, Mmes. de Vatimesnil, the two young sisters Chevilly, Mde. de Bonneval, the Baronne de Saint-Didier, whose silver-white hair is half hidden in a veil of crape, Doctor Feulard carrying the body of his daughter; and in the background the figure of Saint Vincent de Paul welcoming the sisters of the poor. Above are the figures of angels supporting the Cross of the Passion, and the figures of Faith, Hope, and Charity. The whole is a wonderful page of grief, consolation, and pity.

The vote for the medal of honour for architecture at the Salon took place on April 21. The ceremony was presided over by M. Daumet, and seventy-seven architects took part in the

voting. At the first round the votes were divided between MM. Guilbert, Wable, Despradelles, and Recoura; at the second round the majority of votes was greatly in favour of M. Guilbert, and to this architect was awarded the medal of honour for his drawings of the commemorative chapel just referred to.

The Paris Town Council has adopted the scheme submitted by M. F. Cavel for the enlargement of the Palais de la Bourse, by means of the construction of two wings, one on either side of the present building, with a continuous colonnade in the style of the actual building. The Palais de la Bourse was commenced by Napoleon I. from the plans of the architect, Theodore Brogniart, and completed under the Restoration by Eloi Labarre. The building took nineteen years to construct, at a total cost of seven and a half million francs, and was inaugurated in 1826. It is said that although Labarre continued the work without any variation from the original design of Brogniart, yet all the honour has fallen on the former, so much so that at the death of this architect in 1833 special honour to his memory was shown at his burial by taking the funeral procession once round the monument on the way to the cemetery. A relief model was exhibited by Brogniart at the Salon of 1808, and it would be interesting to compare the model, which is probably to be found in some of the State offices, with the actual building.

The Minister of War has issued a decree fixing the number of medals necessary to the students of the Ecole des Beaux-Arts to afford dispensation of two out of the three years of obligatory military service: viz., painting and engraving, twenty medals in the various school competitions; sculpture, seventeen medals; and architecture, forty-three medals.

The Académie des Beaux-Arts has awarded the Prix Duc for 1900 to M. Chedanne, architect, for his Palace Hotel in the Champs Elysées.

The first International Congress on Theatres will be held at Paris from July 27 to 31 next. The programme will deal especially with the questions of the interior and exterior architecture of theatres, the safety of the spectators, the lighting of the theatre and scene, the machinery, decoration and costumes, and the general arrangements for presenting classic and modern pieces. The Minister of Public Instruction and Fine Arts has accepted the presidentship; and MM. Pascal (architect of Civic buildings), Bunel (Architect of the Prefecture de Police), Cassien-Bernard (architect of the Opera House) will be amongst the members. The first portion of the programme, to be brought forward by M. Bunel, will comprise the questions of plans, arrangement, and furnishing of theatres and concert-halls, the maintaining or the suppression of the proscenium, the arrangement of the orchestra, the rules and regulations concerning the safety of the public and artists in France and abroad, the construction and arrangement of a popular theatre. All desiring to take part in the Congress must apply to M. Charbonnel, Secretary, 168, Rue de Grenelle.

The subject for the second preliminary competition amongst architects for the Prix de Rome was an Athenæum, comprising a large atrium or vestibule, with galleries adjoining, for exhibiting reproductions of ancient and modern works of art; a large amphitheatre to contain 2,000 persons; ten other amphitheatres of various dimensions; a concert hall; a large library, and a winter garden. Ten of the competitors have been selected for the final competition for the Grand Prix de Rome. The subject for the annual competition at the École, called the Rougevin prize, was the decoration of the stern of a ship. This subject, rather out of the ordinary line for this important annual competition in decorative composition, produced some designs well studied and beautifully drawn and coloured, but hardly suitable in a practical sense, since they bring us back to the high poops and decorative sterns of the ships of the time of Louis XIV. and XV. The first prize was awarded to M. Senés, the second to M. Vielborski.

The Paris Town Council has decided to change the form of the street name-plates fixed at the corner of each street, and to render them as artistic and as interesting as possible. With this object they propose, first, to frame the name-plates in an artistic and instructive manner; and secondly, to inscribe under each name a few lines giving the history and the reason of the name. As nearly all the streets of Paris are named after some celebrated scientist, artist, general, or other great man, or again after the name of some old custom or trade which once took place in the neighbourhood of the street, or again after a town or place famous in the history of France, the proposed innovation will be not uninteresting.

The Commission du Vieux Paris has requested, and has obtained, the classing as an historical monument of the famous Chevaux du Soleil, a large bas-relief which surmounts the doorway to the old stables of the Hôtel de Rohan, now the Imprimerie Nationale. This bas-relief was the work of the sculptor, Robert Le Lorrain, born in 1666, pupil of Girardon, and Prix de Rome. It has been decided to demolish the old Hôtel de Rohan; the request of the Commission du Vieux Paris is therefore well timed.

The students at Rome have sent home some interesting work this year. M. Duquesne exhibits the actual state and a scheme of restoration of the Trophies of Marius. M. Pille sends numerous drawings of the Temple of Victory on the Acropolis of Athens, the Church of Samari, the tomb of the Medicis at Florence, the doorway of the Cathedral of Come, and interior views of the Church of Mount Athos. M. Patouillard exhibits details of various old buildings on the island of the Tiber, showing the actual state of the island and a view of the buildings along the river. M. Recoura sends a restoration of the Circus of Maxentius, of which he exhibited the actual state in his drawings of last year. M. Chaussemiche has sent drawings of the Acropolis at Terracina.

The Great Exhibition, although gradually taking on an appearance of completion in some portions, is still far from being ready to receive the public in a fit manner. All the principal buildings are completed, or nearly so, with the exception of the colouring, but the various installations in the interior still leave much to be desired. Now that the inauguration has taken place the fever of the last few days before the opening has given place to a comparatively unhurried calm, which does not augur well for the rapid completion of the whole. Still, no doubt, a month's time will see the Exhibition in a state nearly approaching readiness, and the various buildings are being inaugurated as soon as their respective interior installations are completed and the public admitted. Owing to the backward state of the power for generating electricity, the "Fêtes de Nuit" have been suppressed, except in some portions where electricity is obtained from private or public sources. The rolling platform has turned out a great success; the paying entrances to the grounds average 40,000 per day, and 120,000 on Sundays, despite the fact that visitors are almost unable to go through a large portion of the buildings.

We may add to our obituary notice of M. Falguière, given last week, that the sculptor has only left three works unfinished, viz.: a statuette of General Gallifet, a figure intended to replace, at the Panthéon, the statue of the Revolution which had been provisionally placed there, and a picture, "Deux Nymphes Surprises au Bain." The monuments to the composers Ambrose Thomas and Bizet are completed in marble, and ready to be put up. The medallion intended for the tomb of Daudet is completed, and the figure of Fame which is to surmount the Pasteur monument. The monument itself is in course of execution under the direction of M. Dubois, and also the monument to Balzac. A fine medallion by M. Victor Peter, which was to have been presented to Falguière by his friends and pupils, will be presented to his widow. It has a profile likeness of the sculptor on one side, and on the reverse a reproduction of his "Poète emporté par Pégase," one of his last works, which adorns the Square de l'Opéra.

The new Orléans railway terminus on the Quai d'Orsay, in course of erection from the designs of M. Laloux, will not be completed till the middle of July, but it is sufficiently advanced to show that the façade towards the Quai will have a fine decorative aspect. The new Invalides station by M. Juste Lisch, in Louis XIV. style, has a fine hall, cheerful and well lighted, and decorated with landscapes by M. Eugène Bourgavis, representing the principal towns along the line—St. Malo, Dieppe, Rouen, Havre, Cherbourg, Brest, Mont St. Michel. The same architect has designed an elegant little pavilion in Louis XVI. style for the station in the Avenue Henri Martin, an agreeable variation from the usual commonplaces of railway station architecture. This station is on the new line which the "Ouest" Railway Company have established to serve the Great Exhibition by a direct route. This will be a great improvement on the roundabout system of railway communication with the 1899 exhibition. The new line, which branches from the Ceinture line at Passy, crosses the Seine abreast of the Ile des Cygnes on a steel viaduct, and lands the passenger at the Champ de Mars terminus, whence also there is a new line to Versailles, driven by electric power. This latter passes through a tunnel on the left bank, beneath some of the Exhibition buildings.

The visitors to the Exhibition will thus have easy access also to Versailles, where, under the direction of the able curator, M. de Nolhac, a great many new objects of interest are being arranged. For instance, four new picture galleries have just been opened on the ground floor; rooms with large windows opening on the Orangerie, and containing some pictures of great interest. Among them are a fine portrait of Mme. de Maintenon, and one of the Marquis of Dangeau, the historian of Louis XIV's. reign, by Rigaud, by whom also there is a portrait of the Duc de Noailles. In the next room are portraits of Philip V. of Spain and his queen, Elizabeth of France, by Van Loo; that of Louis XV. and that of James Stuart. In the third room is, among other pictures, a curious representation of a review of the "Mousquetaires du Roi." The collection in the fourth room includes portraits of Marie Leczinska, of the Dauphin, and of Choiseul, the celebrated Minister under Louis XV. These new galleries complete the collection of paintings open to the public.

We have to record the death, at the age of sixty-three, of M. Léon Daru, member of the Société Centrale des Architectes. He was a pupil of Guénepin and of the Ecole des Beaux-Arts. He was architect of many private residences, and of the buildings for the racecourses at Enghien and Saint-Ouen. He was an excellent practical architect, and his loss is much regretted by his professional brethren.

ANOTHER PITTSBURG FIRE.

CURIOUSLY enough, since the publication of our article on fire-proof construction, we learn that the Horne Store Building, Pittsburg, has once more been seriously damaged by fire. As pointed out in our last issue, some serious structural defects were evidenced by the fire of 1897, and though the building itself escaped destruction, the damage done represented a sum which ought to have suggested to the proprietors the desirability of more adequate means of protection against future danger. The account given of the second fire proves that some of the original faults were perpetuated in the reconstituted building, for the flames again spread from one floor to another by way of the shaft openings, and the roof again collapsed, because it was only protected by a so-called fire-proof ceiling. Nevertheless, this recent fire shows clearly how the contents and fittings, even of a badly-designed fire-proof building, may be completely destroyed, whilst the structure itself escapes with comparatively little damage. This is satisfactory evidence of the value attaching to fire-proofing methods, but so long as the owners of premises continue to insist upon the adoption of inadequate designs, and to neglect the teaching of experience, so long will fire-resisting construction be lightly esteemed by the public at large. Some useful information as to the history of the 1900 fire is to be gleaned from the report of an engineer, who received full assistance in his work from the Fire Bureau and from the Fire Marshal. The following collated statement is from the report in question:—

"The street walls have large unprotected windows, the rear wall has windows with shutters of wood covered with tin. The tin-covered shutters stood the severe test very well. There is a large light-well running from the first floor to the roof; it is 50 ft. by 22 ft. in size, and opens on all floors. There are two iron stairways on the east side, running from the first to the sixth floors. Four passenger elevators run in shafts, with 5-inch terra-cotta protection and iron doors at each floor, the upper part of the doors being open grating. In the rear of the building are two freight elevators, cut off by tile partitions; one elevator well communicates with the adjoining stairway at each floor. The rear stairway from the first floor to the roof is enclosed in terra-cotta walls. At the time of the fire there were no fire doors in any part of the building to shut the openings from these shafts to each floor. There was (*sic*) no fire hose except in the boiler

room, no fire-pump, no automatic sprinklers, and no auxiliary fire-alarm boxes; only fire buckets and hand extinguishers. There was little protection on top of the main floor beams, merely a little cement under the top flooring. The fire is believed to have started on the fifth floor, and was soon burning on the fourth, fifth, and sixth floors; about the time it was put under control there it broke out in the basement. The first floor was burned somewhat by embers falling through the light-well, and by flames coming up through four openings from the basement. Molten glass from the covering of the light-well ignited everthing it struck on the first floor. About two-thirds of the roof has fallen in. The roof metal work was unprotected below; the ceiling was of expanded metal covered with plaster. Three columns failed above the false ceiling where they were unprotected. The fire is supposed to have been conveyed to the basement mainly through a vertical shaft, and also down the freight elevator wells."

These particulars do not constitute a complete statement of the damage, but they are sufficient to emphasise the principal defects of the building, and from them the following conclusions may be drawn:—

1. The need of adequate internal roof protection.
2. The necessity for fire-doors at all openings in shafts, and the undesirability of light-wells, especially if unprovided with fire curtains preventing the communication of flames from one floor to another.
3. The need of automatic sprinklers, of fire-pumps, of auxiliary fire-alarms, and of organisation generally for dealing with an outbreak of fire in its initial stages.

So far as the main features of the Horne building are concerned, it is worthy of note that the damaged steelwork, which originally cost more than 18,000*l.*, can probably be repaired at a cost of less than 1,000*l.*, and as this sum includes making good the wholly preventible damage in the roof, it will be seen that very little harm has been done in other directions. With regard to fire-proofing material, we learn that the cost of repairs is not likely to exceed 130*l.*, exclusive of damage in the roof. Beyond these amounts, a heavy loss has been incurred in respect of merchandise, and as the owners can hardly derive much advantage from periodical fires of this nature, we may expect to hear that the Horne building is to be more worthily representative of modern fire-proof construction in the future than it has been in the past.

MOUNT HERMON CONGREGATIONAL CHURCH COMPETITION.

SIX designs submitted in competition for this chapel, which it is proposed to build in York-road, Woking, were on view last week at the Memorial Hall in Farringdon-street. The conditions of the competition we have not been able to see, but we gather from the architects' reports attached to the plans that the scheme was to be considered under two sections, viz.: the chapel and vestries, and a memorial hall and some adjacent rooms, and that the sum of 3,500*l.* was available for the church, &c., and 1,300*l.* for the remainder of the scheme. This is little enough; and Mr. Seth-Smith, whose plans have been accepted, not only furnishes by far the best design, but is the only one of the competitors who seems to have fully realised the necessity of economy of material and construction in view of the limited sum to be expended. He adopts for the church a low, wide roof with curved braces, on timber supports instead of stone piers for the aisles. The hall and other rooms are arranged in a block parallel with the church on the south side (if the usual orientation is adopted), the hall being connected with the west porch of the church by a corridor, and another corridor of communication runs up parallel with the church. When the south aisle is added, which is supposed at present to be left as a "future extension," the light to it would be rather interfered with by the subsidiary buildings only divided from it by the width of the corridor. The decorative treatment of what we must call the nave arcade, as indicated on the longitudinal section, could only be judged of from a detail drawing; it may be asked, since this is a timber construction, why adopt an arched form in the bays—a form not suggested by woodwork? The organ space, as usual with church plans, is too small (about 10 ft. by 10 ft.) and too much "cornered." The general effect of the building, as shown in the pencil perspective sketch, is very pleasing, and though the author shows a small tower with an octagon lantern and spirelet, he is careful to point out that this, above the level of the aisle roof, can only be regarded as an extra, to be carried out at some future time. His estimate for the whole is 4,790*l.*, which, comparing the figures, is apparently based on a general estimate of 8½d. per cubic foot—a reasonable sum for the style of work indicated. There is no doubt that this is by far the best and most suitable design of the six; indeed, we should say, the only one that could reasonably have been chosen.

The next best design is that by Messrs. Cubitt & Collinson, which however we do not think could be carried out for the money; it is solid building, though plain enough. The subsidiary buildings are mostly arranged in a block *en échelon* with the church, near its south-east angle, which avoids the difficulty in regard to lighting the future south aisle when carried out; on the other hand, the position of the "church parlour," extending northward from the west front and at the furthest point from all the other rooms, cannot be regarded as convenient. The organ is better placed than in the accepted plan, with more space and in a more prominent position for sound. The estimate for the whole scheme is 4,998*l.*, based on an assumed cost of 8d. per cubic foot; but if we take Mr. Seth-Smith's estimate for his scheme as accurate, it is obvious at a glance that this one must cost a good deal more, especially as there is a tower of pretty solid proportions which, as far as appears from the architect's report, is included in the estimate. The authors show a scheme of their own for promoting extract ventilation and preventing cold down-draughts; the nave is ceiled in the upper portion with a raking ceiling rising from east to west, forming an extract flue leading to an outlet at the west end, and rows of small hot-water pipes laid just beneath it to keep the under surface of the ceiling warm, as well as to induce a current in the flue formed between it and the roof ridge. This arrangement is supposed to be sufficiently veiled, in regard to appearance, by the open roof timbers beneath it. We fail to see the advantage of the rake, which would have the effect of contracting the extract flue towards its outlet, though the effort to warm the roof portion of the church is meritorious.

Mr. W. Theobalds, another competitor, expresses a reasonable doubt whether the sum named is sufficient even for substantial building without ornament. He shows a plain and sensibly-treated brick edifice with stone dressings, the planning is good, and the church plan widens in an effective manner towards the east end; but the author's scepticism as to the possibility of carrying it out within the assigned limits of cost is certainly justified. The other designs hardly call for comment.

THE ARCHITECTURAL ASSOCIATION.

AN ordinary fortnightly meeting of the Architectural Association was held on Friday evening last week in the Meeting Room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, Mr. G. H. Fellowes Prynne, President, in the chair.

Mr. G. B. Carvill, Hon. Sec., announced that the annual soirée (smoking) will take place at St. George's Hall, Langham-place, W., on Thursday, May 10, at 8 p.m., when a musical play will be performed, entitled "The Mayor of Montilado: a Spanish Romance." Members' tickets 1s. each, visitors' 2s. 6d. each. A ladies' night (dress rehearsal) will be given on Wednesday, May 9, at 8 p.m. Double ticket, to admit lady and gentleman, 3s. Single tickets, ladies, 1s. each; gentlemen, 2s. each. Mr. Carvill said it was hoped that the soirée would be well attended by members.

Mr. Carvill also announced that Mr. A. T. Bolton had presented to the library a bound copy of his paper, recently read before the Association, on "The Dome as the Basis of an Architectural System."* A vote of thanks having been accorded to the donor,

The Chairman announced that the first meeting of the Water-Colour Class will be held on May 12. On account of the ill-health of Mr. A. W. Weedon, Class Instructor, Mr. P. L. Forbes has been appointed as his successor. There will be eight meetings, only two of which will be indoors.

The Chairman also announced that the annual dinner will be held on May 31 at the Criterion Restaurant, Piccadilly, tickets 6s. each. He hoped that a large number of members would be present.

The Chairman then nominated as officers for next session those gentlemen whose names were read at the last meeting.* The following gentlemen were appointed to act as scrutineers, viz., Messrs. W. A. Jeckells, G. Symon, C. H. Brodie, and A. Smithers.

Mr. J. D. Crace then read the following paper on

The Coloured Interior Decoration of Architecture.

"When so large a subject has to be dealt with in so short a time, it is necessary to select some one section or principle to which particular attention may be called, and in looking round to make such selection, I find one upon which I have often laid stress before, and which cannot be too often insisted on with regard to decoration. I mean its subservient relation to architecture; its duty of respect to the architecture it is to adorn.

Let us for a time put aside the average dwelling room with no features that can be classed as architecture. Colour can do much for it—can give it character, can give it proportion, and can make it lovely or unlovely; but the result after all is a matter which concerns only the owner and the decorator. They can try what experiments they are inclined to, or what fads they fancy; and they do no man wrong. If the result pleases their friends, they have their reward; and if it does not, they will be satisfied that this is due to want of culture in their friends.

But it is quite another matter if the building under treatment has other than domestic functions, or has received from its author some definite architectural expression; that is to say, bears some stamp of another man's thought.

When this is the case, it becomes the decorators' business to study that evidence of thought and to endeavour to enhance its value. In pursuit of this intention, he has first to try to ascertain what lines or what features are really of the first importance in expressing structure and proportion. If he can find these, he must never lose sight of them, for these are the features or lines with which nothing else must interfere.

However varied or however rich the decorative detail of the whole may be, the final result of the coloured decoration of architecture should be lucidity of expression, and this is only to be obtained by allowing the due proportion of expression to each feature which has a place in the ideal scheme of structure. If such expression is really in due proportion, repose—that great element of beauty in all art, but most of all in architecture—is produced. For what is it that produces 'repose' in art? It is the immediate satisfying of the mind's instinctive search for something; and in architecture that something is stability. Now, this stability which the eye and mind demand is not one of which scientific or practical evidence need be forthcoming. It is that of which an instantaneous conviction is borne to the mind by the continuity of suggested lines of strength in reasonable proportion to each other. And it is these lines of suggested strength which colour may do so much to explain or to confuse. Nor is the explanation altogether so simple a matter. It is as harmful to over-accentuate any of them as to confuse them. The expression of each part must be relative. To exceed the due proportion of expression in any part is to disturb the balance. Blatant expression in colour is like shouting one's own language in the ear of a foreigner; it does not make things clear, and probably gives offence.

Another point which it is desirable to mention, because it is the subject of frequent misconception, is that lucidity of expression does not depend on the use or omission of detail. The most elaborate and delicate detail is compatible with perfect lucidity.

The one necessary thing in using ornamental detail is to take care that it does not interfere with the main scheme. Used with proper skill and knowledge, it should be able to assist materially in its development. On the one hand it, should assist to explain surface or to accentuate line; on the other, it is invaluable as a means of lowering tone and softening effect, without sacrificing purity of the individual colours. Further, it facilitates harmony by

* See *Builder* for January 20 last.

* The names were printed in our issue for April 14.

giving the opportunity of small 'recalls' of colour—of importing, as it were, fragments of one colour into the field of another—one of the most essential conditions of complete success in harmony. This should be carefully noticed by students in examining the pictures of the best masters.

I have said just now that it is the first function of colour, when used in architecture, to assist in producing that 'repose' which results from an instantaneous impression of stability. This means that the eye must be encouraged to recognise at a glance such features and proportions as indicate or suggest well-balanced structure, whether that be expressed in the architecture or not; for it must, and in fact does, often happen that structure is not outwardly expressed—at any rate, not to the extent that allows instantaneous conviction of its sufficiency. A flat ceiling is one example. In such cases colour steps in and suggests constructive lines of some sort, which, though they have possibly no relation to the actual invisible structure, suffice to satisfy the eye in a moment as to the balance and stability of the surface, on which it must otherwise have hesitated in doubt. Moreover, lines of some kind are indispensable to assist the eye and mind to travel over the surface of the building; and, whether by mouldings or by colour, it is the disposition of these lines upon which depends the impression of 'repose.' If simple, and suggesting the relation of one part to another, the eye grasps the meaning quickly and is at rest. But if the lines expressed (whether by mouldings or colours) are inconsequent, purposeless, and without proportion, the eye becomes puzzled, restless, and dissatisfied. The eye demands a clear path, not a broken wilderness.

To touch on another branch of decoration, and a most important one, the use of pictorial art in connexion with architecture. We are accustomed to hear the most transcendental talk over the idealism or symbolism of the subjects to be painted in this or that building. I am far from underrating the value of this quality in art. What I want to point out is that it is the building, as a whole, if it be a worthy building, which first has to be considered; and that it is the form, the tone, and the treatment or style that affect the building, not the 'subject.' For the harmony of the building it would not matter a jot whether the subject were 'Cupid and Psyche' or 'Moses in the Bulrushes.' But it may ruin the whole effect if the picture is in a badly proportioned panel, painted in too cold a key, or executed in a style too crude or too complicated for its surroundings. Not one in fifty of even very able English painters has been trained to look at art from this side—or to consider the necessity of keeping the whole tone of his own work in relation to the decorative result in the whole building. Look at the paintings in the Royal Exchange. Not one, or perhaps but one, is in tone with its surroundings; nor any two in tone with each other. I regret this the more because I first suggested, in a report to the Gresham Committee dated October 9, 1890, that these panels should be painted historically.

Undoubtedly, painting in the studio instead of on the wall itself tends to enlarge the risk of want of harmony with the whole surroundings, though it certainly presents some advantages. To take one disadvantage alone, the difference of light. This is almost certain to be different in degree and quality, and more than likely to differ in direction. This being the case, there is only too much probability of a general difference of tone between the picture and its surroundings when finally brought together. Even the design or cartoon of the picture—colour apart—will often need some change, when tried on the spot, from what seemed satisfactory when viewed in the studio.

The coloured bands or margins, which in coloured decoration are so valuable, are more than ever useful when pictorial treatment is adopted in the panels. They afford the means of connecting the more forcible colouring of the picture panels with the rest of the work, and so preventing them from appearing as detached patches. Apart from this function, they greatly facilitate and direct the passage of the spectator's eye over the whole work, and aid that prompt grasp of form and surface which I have already spoken of as inducing the sense of repose.

The matters which I have mentioned are practically 'axioms' which are absolutely independent of style or fashion. The building may be ecclesiastical or secular, Classic or Gothic, simple or elaborate; it matters not. The general principles which should guide decoration are true for all. And it is this main point which it seems useful now to insist upon, because we find so many persons ready to substitute particular arrangements of colour or pattern for any real knowledge of art or principles.

Be sure of this, that just as sound principles are independent of style or fashion, of any special harmonies of colour or of any character of design, so no design, no arrangement of colour, no excellence of skill, can really enhance the value of the architect's work if the decorator does not carefully think out and follow those immutable principles which, whilst they allow of an infinite variety of treatment, have for their base the expression of the repose and stability of the architecture."

Mr. Gerald Moira then read the following paper entitled

Colour Decoration.

"To deal with a subject like the one we have before us this evening is a very difficult matter, as there is always so much to say and equally so little. Decoration is a thing about which everybody from the very earliest period has had something to say, and, therefore, as there is nothing new under the sun, I am afraid nothing new will come from me; but, as you have kindly asked me to speak on this subject, I will endeavour to give you my ideas. There are one or two points I would like to put forward, especially about outside decoration, and more so about outside colour decoration, about which I feel very strongly.

Firstly, let us take the Greek work. I do not think it is necessary to go further back. Take the Parthenon, for instance: it was a great marble edifice. Now, the frieze round the building was in low relief and, I think I am right in saying, was coloured, was it not? And I fancy the capitals of the columns were also coloured or gilded, and that colour as an enrichment was, no doubt, used on other parts of the external ornament. If I knew more about the building, or as much as some of us present, I could tell you exactly what parts were coloured; but that is not what I want to point out at present. What I want to point out, and what we want to know, is: was the result when new a success? I say when new, as we all know what a delightful painter Old Time was and always will be. Well, was the result a success when new? I think it must have been, and principally why I think so is because of the glorious climate and perpetual sunshine, and that perpetual sunshine and clear atmosphere wants colour. You may be surprised to hear me say this, but I feel I am right. Why? Because the shadows are so cold, the sunlight so dazzlingly white, that there is practically nothing of variety of colour in the noonday heat. As we all know, it is only when we feel hot in the sunshine that we know it is hot; by that I mean the more dazzling the sun the more deadly white the building becomes, and the more uncompromisingly blue the shadows are; the sky one expanse of pitiless azure, the trees in the landscape one uniform blackish green, and even the earth a parched grey monotony. Well, all this is cold in colour, is it not? and the old Greeks took this into consideration and recognised it, and I am certain that is why they put colour on their buildings. Do not think I am running down the sunshine; I am only trying to point out that where there is no cloud (and therefore scarcely any atmosphere) the less colour the landscape has. That is my reason for believing that these buildings required colour.

If we come a little further north we see less colour on buildings, and when we do see it, it is not quite successful. Why? Because nature has more colour in it, and, therefore, a white building with a zinc roof comes as a relief. In the latitudes that embrace the greater part of Northern Europe we do not find so much colour outside buildings; but, again, higher up towards the Arctic, your coloured wooden reliefs have been and I believe are still used. This is no doubt for the same reason, only in this case it is the perpetual snow that requires relief. In mediæval Italy, Spain, Portugal, Southern France, and even Southern Germany, we find a great deal of colour, especially in Italy and the Peninsular. I attribute this to the Church as much as to the sun. The reason I do so is because the Roman Catholic Church has so many holidays and feast days. On those days the people come out in their best garments, and these best garments were always bright, nay, brilliant in colour, and then the art world of the day found that grey and white buildings did not suit so much bright colour; they wanted a note of it somewhere, and it was this that led to such buildings as Venice possesses, and to some in Spain and Portugal that one could no doubt name. Even in the present day the people of those countries do not look amiss, because they are still in a great measure a holiday-making people in an everlasting sunshine. We in work-a-day England do not get much sun, and precious few holidays, and therefore do very little else but work. Our wearing apparel naturally becomes neutral tint, and as such we could not stand our buildings being highly coloured; they would be out of key. It is the commonplace things that have their effect even on art. It is the man's mode of living that rules his household and a nation's mode of life that rules everything around it, and it is necessity that rules the world. Had I said this in the beginning, I need not have troubled you all this time. These are my ideas why colour was used on the outside of buildings. The inside is different, and is therefore more uniform all over the world; that is, the same amount of colour and same treatment can be used in the north as in the south. Of course, one finds places that ought to have been decorated left undecorated, and *vice versâ*; but this sort of thing is sometimes unavoidable. Take a church, for instance, that has been decorated in this period and in that from time to time. It looks well—at least, it hangs together. I believe it is dirt that does it, because it is the most dangerous thing to put a new painting or mosaic in an old building. Why? Because they are out of tone. The former has the best chance, as it will go down, but will not look well for at least half a century. The latter, like all materials that have a glazed surface, has no chance in a stone building, old or new, and therefore ought not to be used. It will remain blatant and bright for hundreds of years when the stonework around it is becoming yearly more toned down and mellowed. When we see an old church abroad that perhaps may have had the roof painted some hundred or so years after it was built, the man who painted the roof made no attempt to keep his work in the same style as the architecture, but to-day it looks well, taking for granted that the man who painted it was an artist. Now that brings us to two questions: the first one is, 'What is Style'; the second, do we work for to-day or for the time to come? Firstly, to my mind too much is thought and said about style to-day. An architect comes to the painter and says: 'I have a Gothic building and want some Gothic decoration for such and such a part.' Now that seems to me ridiculous; to start with, I don't believe the building is Gothic. We live in the twentieth century, and when Gothic art flourished railway trains and quick-firing guns and a thousand and one other things did not exist, and all these things help to influence the Gothic building of to-day. It may be exactly right in proportion even down to the very smallest moulding, but it won't have the spirit of the Gothic times. This is not quite the architect's fault, though perhaps he ought not to have tried it; the fault lies as much with the men he is obliged to employ; the stonemason and so on, who only work with their hands, and who's one idea is either the dinner-bell or the bell for knocking off work. And it is the influence of the present-day times that prevents an architect being able to procure from the painter a Gothic decoration. The painter may be able to paint knights on horseback and saints in a way that perhaps to-day look mediæval, but in fifty or eighty years time they will say 'There is one of those queer things painted at the end of the last century, which in those days was supposed to be quite mediæval,' and to us now, what was built sixty years ago and looked upon as pure Gothic, to-day we call it Early Wesleyan, or Victorian and Albert, and there is every reason that in another sixty to-day's Gothic will be put down to to-day. So to my mind it makes very little difference in painting a decoration for the said Gothic building whether you dress your figures in the costume of the Gothic period or in the clothes of to-day. In fact, to-day's garments would be more honest and more in keeping with it, and if such a work be done by an artist it will keep its place and will look well for ever. I think the last words answer the second question. I have only said Gothic for the sake of a name.

I have just returned from Paris, and while I

was there I went to most of their public buildings that have been so lavishly decorated with great frescoes within the last thirty years, and I came still more to the conclusion that they have had one great decorator, Puvis de Chavannes. He was a man who thoroughly understood that his decoration was to be part of the building it was to be placed in, and he always regarded the wall he was dealing with as the flat surface it is, and in this way preserved the architectural features and the proportions of the buildings; and these are the points that go to make a great decorative artist. The rest of the men who have covered large walls in such buildings as the Panthéon and the Hôtel de Ville have had nothing else in their minds, it seems, but to do a *tour de force*, a thing that in some instances it is impossible to be in the same room with. One I remember very well; it is a ceiling with rolling clouds and blue sky, on which some cavaliers and ladies are dancing a minuet or something of the sort. To begin with, I should say it would be a most uncomfortable thing to dance on, leaving alone that it entirely throws the proportion of the room out, as it makes the ceiling an indefinite height. This is the style of work that makes architects very chary of giving decorative work, and goes to show that a man may be a very good portrait painter, or landscape man, who has no idea of the qualities that go to make a decorator.

There also seems to me to be a common misunderstanding as to what *is* true decorative painting. The art of painting embraces three distinct styles—firstly, the purely pictorial or the representation of nature in colour—realism; secondly, the decorative picture; and lastly, decoration pure and simple. We need not deal with the first or realistic style, but I think we should arrive at a definite comprehension of the difference between the two latter forms of painting, for I imagine that it is owing to this lack of understanding that much so-called decoration at the present time fails in its intention. A picture is complete in itself, and has nothing whatever to do with its surroundings. This is proven by the fact that it is possible, with no worse effect than a bad headache, for one to go to an exhibition where are jumbled together some hundreds of pictures, each having not the slightest relation to each other, but no one has ever suggested that such treatment of a wall as employed, say, at the Royal Academy, is a successful form of decoration. It is necessary for one to lay stress on this point to prove what I wish. The decorative picture, however good in itself, remains always a *picture*. And, as if by instinct, the artist feels himself when painting it more trammelled than he ought to be when engaged in decorative art. He takes, perhaps, a historical scene, and treats it in however peculiar a way he may feel. He may be a Burne-Jones, Rosetti, Ford Maddox Brown, Leighton, or any similar stylist, but the mere fact of his having to deal with a piece of canvas having no ultimate relation to any particular site, also instinctive conventions, be he conscious of them or not, will cramp his power and for ever prevent his creating other than a decoratively pictorial effect, however fine in its way. It is, I conceive, hardly possible for a picture painter to break these bounds, try as he may (the only notable instances are perhaps the finest Japanese prints), and this, I feel, shows that a picture can never be successfully hung except on an easel, apart from anything else, and not placed to ornament a wall which it was never designed to decorate. A true decoration should be absolutely a decoration, and nothing else. That is to say, it should be the most appropriate enrichment of the space requiring it. This is what I meant when I said what I did of Puvis de Chavannes' work. Hence it is agreed that in *method* as well as in intention there should be little or nothing in common between the picture and the applied decoration. The best realism is that which, amongst other things, suggests atmosphere. In mural decoration the absence of any sense of atmosphere is its finest quality. There should be neither atmosphere nor any forced perspective to mar the effect of flatness, which should be the first aim. The wall is a constructional flat plane, and nothing should be done on it which will create an illusion that it is not flat. One has seen decorations painted on walls which give the idea that the painter had objected to the wall, and desired that the weight overhead should be supported by a hole through which one saw some scene or landscape, and this error was found by the analytical eye to be more or less entirely due to the introduction of atmospheric and perspective effects in the painting. Such work could never be accepted as true decoration, and the bare wall in these cases would better satisfy the eye of any one who had the slightest education in architecture and its demands than any such painting, however clever in paint technique or strong in colour and subject. The Sistine Chapel painting by Michelangelo, certainly one of the finest accepted works of its kind, loses greatly, to my mind, by the introduction of violent perspectives and shadows which destroy the flatness of the spaces and cast a blemish on otherwise perfect work."

The decorative painter should find himself less trammelled than in any other branch of the art, yet one seldom finds that the opportunities afforded are made use of or even realised at all. He has, of course, certain rules and conditions to conform to, such as uniform scale, &c., but in the main he is a free agent. While he should conform to the laws of nature, he is not *bound* by nature in the photographic sense. The old sculptors and painters went to nature for their foliage, and yet each one in translation impressed his own individuality to a very marked extent, so that we find a large number of carvings and decorations by different men of, say, the vine-leaf, yet while each one is totally different in treatment to the next, they are all undoubtedly vine leaves. And here let me remark that in every case the spirit of the age—the date of the work—is indelibly marked. So it should be now and in the future. The decoration, no matter what subject or however treated, should be contemporary in feeling. It is quite a false idea to imagine the twentieth-century artist can possibly feel and work with the intention of the fifteenth-century painter. We live under entirely different conditions, and we must work in sincerity to our feelings if we wish to do honest and convincing work.

I hope I have expressed what I mean by the few limitations only which are set to the decorative painter. For the rest, he has an entirely free hand to evolve beautiful shapes and use the richest schemes of colour, while his choice of subjects is seldom limited by conditions which render them impossible for the pictorial painter to translate into paint. A good design, first of all, should be the object of the decorator—fine line, happy placing, big masses, and equally fine empty spaces. Then the treatment of his figures, draperies, and accessories with beautiful outlines. For outlines form one of the chief difficulties and are one of the most important features in decoration. The realist may lose an outline here and there to a mere impression, but the decorative painter has to deal with hard-and-fast outlines, which the absence of atmosphere insists on. It is in this respect that I quarrel with what I term the pictorial decorators, and there are unfortunately many such who are engaged on buildings at this present time. Another error I think is to imagine that a richer decorative effect is obtainable by the employment of an intense, high-pitched key of colour. There can only be ONE really successful scheme for each one particular place, and it is the first object of the artist to discover what that is, what style of work, what scale of drawing, and what scheme and key of colour. This is where careful study and training as much as natural instincts will tell. For the rest, it is not for me to say anything of my own methods; I doubt if I could. I have contented myself with dealing, as far as possible, with the main question as to what will and what will not lead to a successful decorative effect."

Mr. E. P. Warren said he had listened with great pleasure to the admirable and thoughtful papers, and he found himself in almost entire agreement with the ideas of their authors. Mr. Crace's paper was obviously the result of great experience and thought, and was extremely suggestive to students of decoration, and to those architects who, like himself (the speaker), had concerned themselves much in decorative efforts of a simple kind. Mr. Crace had said that a man was free in his own room in decorative matters as in others, which was true; but in the simplest treatment of a room, and in the simplest form of decoration even, an initial idea was necessary. The scheme of decoration of the room must be relevant to the treatment of the rest of the house; it must be remembered that the room had a door which would probably open on to a passage or another room, and, in order to get harmony or contrast, not only should the scheme of the room be considered, but the scheme of the room in relation to the passage and the other rooms. In rooms of importance, and in decorative schemes upon a considerable scale, the method of co-relation was one of the first things to consider. There was, for instance, not only the effect close to the eye in the apartment, or portion of the building being decorated, but the effect of vista; and there was also the effect of repetition of colour, or change of colour, and very often the principle alluded to by Mr. Crace (which was seen in mediæval art of all kinds, to some extent, in English polochromy, and the remains of colour decoration to be seen in the Eastern Counties and other parts of England), viz., the principle of counter-change. A good effect was got by repetition and counter-change of colour. They must have noticed, if they had studied East Anglian work, the colour in the screens; the colours employed were few, but there were repeated panels of red and green which counter-changed, giving a pleasing effect of repetition, of rhythm and harmony—a tying together which was very pleasant. That could be applied more broadly in dealing with apartments, or portions of apartments, of buildings. One could look through arches or doorways, and perceive another apartment in which might be an approximate or exact counter-change. For instance, one might have a broad scheme of blue in one room, with upholstery of yellow, and in another room one could counter-change to yellow walls and blue upholstery. If properly handled that method was exceedingly effective. In the simplest rooms a definite scheme was required; they would probably know what furniture was to be put into it; they would know all about the light and, if in the country, the general effect that the view out of the window gave. For instance, if it were a room on the ground floor, with French or low windows, and plenty of them, and a green lawn and a good deal of green outside, it would probably be found that it was not wise, unless they were adepts at decoration, to adopt a treatment of green. The crude greens outside, in May and June, would spoil the internal effect in the same colour. That was his experience in simple matters of decoration, for if he had a large scheme of decoration he called in a painter. What Mr. Crace said as to the necessity of line, and the stability which the eye and mind required, was extremely suggestive; as also were his remarks about the lines of suggested strength, where one was not necessarily suggesting obvious structure, but concealed or suggested structure. It explained his (the speaker's) sense of unrest when looking at schemes of decoration in which there was no sign of possible structure. Mr. Crace had spoken of a principle in art which was very important, viz., that of recall of colour. He (the speaker) noticed it in some of Velasquez's pictures in the great gallery at Madrid—a note of colour caught up and reflected throughout the picture. He had also noticed it last year in the Vandyke Exhibition at Antwerp, the same principle being seen in many of the pictures. It was a principle applicable not only to pictures, but to the decoration of a room. He had had a rather striking instance—an accidental one—of the effect of colour being spread or reflected by a picture. An early picture, by Mr. Sargent, of a lady in a red dress, had been removed from a panelled drawing-room and put into the dining-room, which had just the same light and windows as the drawing-room, but the dining-room had a flock wall paper, which exactly matched the colour of the dress. The effect upon the picture was extraordinary; it seemed to give double value to it, while the room itself looked twenty times better than it did without the picture. It seemed almost as though the room had been decorated for the picture, though, as he had said, it had not; and it seemed to be a good instance of the affect to be got by an important picture which had not been painted for the site, but which had been used to create a site. Although he agreed with Mr. Moira that a great painting must be painted for, and almost upon, the site intended, still, if one was the possessor of a commonplace house, and a picture which was anything but commonplace, the object was to try and create the most fitting surroundings for the picture. While Mr. Moira was perfectly right in what he said about the relation of brilliant colour in

costume and the external decoration of buildings to brilliant climate, he did not think he was quite safe in assuming that the instinct for colour was always suggested by brilliant climate, for it would be possible to mention countries where extreme brilliance of costume was to be found in dull climates. There used to be extraordinarily vivid colours in Ireland, with its dull and damp climate, while in Scotland one saw the traditional brilliance of colour in the Highland costume. In regard to buildings, however, Mr. Moira's views in this connexion held good. What he had seen of towns in the East prompted him to believe what Mr. Moira had said, for Eastern towns were generally aglow with colour, but the blazing sunshine created an effect which caused the strongest colour to disappear. He had brought before them a small drawing of a terra cotta cornice in Sicily, on which the small gamut of colour employed—red, grey, and buff—gave an extremely decorative effect of a rough kind ; and it was suggestive in showing that with simple materials the builders had been able to get an external colour effect. The whole thing was a good deal like Egyptian work, such as could be seen in the British Museum and elsewhere. In the fifteenth century decorative effects, in almost the same colours, but on different lines naturally, were obtained in northern countries ; they were to be seen again and again in portions of the coloured roofs of churches in England—at Blythborough, for instance. The use of this simple gamut of colour in the mediæval decorative school was akin to the heraldic school of heraldic emblazoning, where the rules were definite and the colours few. One could not put tinct upon tinct or metal upon metal, and the colours used in the north of Europe were mostly what might be called heraldic colours, and, broadly speaking, the heraldic rule was observed. That led him to think that the rules of blazonry were not merely conventional, but they were suggested by what was found to be suitable for decorative treatment, and afterwards conventionalised and stiffened into definite rules. Heraldry in buildings of importance was still, he thought, an extremely happy and pleasing form of decoration. While not bothersome and troublesome to read, there was a pleasing effect of quaintness about it, and, moreover, it ent itself to most charming effects of colour and to most perfect and beautiful drawing of a decorative order ; unfortunately, it was somewhat neglected by decorative painters today, and yet, next to the indication of the human figure or animal figures, which was not always proper or possible, heraldry was a very pleasing form of decoration. As to Mr. Moira's remarks about the effect of the ceiling of the Sistine Chapel being somewhat impaired by the exaggerated perspective and the shadows, &c., he agreed to a large extent ; but one criticised such a *tour de force*, the work of such a great mind, with diffidence. It was a difficult work to see properly, for one had almost to be on one's back in order to do so ; and it seemed to be somewhat over-intellectualised, somewhat troublesome ; but still, it was such a splendid work that they must all feel glad to have it there as it is. With modern decorative works, he constantly felt that the artist had been over-intellectual—had given too much story ; had given more than any one, even with the utmost patience and study, could take in. There should be study enough in one's work to give the required decoration—some admitted tradition ; something coherent which emphasised the origin of the town or building in which the decoration occurred (a pleasing note was added to the decoration if one could give it a local hint or story, but the story should not be so complicated that the decoration was over-complicated to express it). It should be treated first entirely as the theme for decoration, and it was sufficient if it just indicated that ; and if the decoration were itself successful, only the Philistine critic would bother about the manner in which the story was represented, though it was possible to spoil the story by giving too much of it. In any applied decoration in England, one must remember the climate. For instance, in a large building like a church or a hall, the misty blue atmosphere would affect even broad masses of colour extending up the wall 30 ft. or 40 ft. Red at the base of a wall had a tendency to become purpleish, towards the top. Partly owing to the blue in the atmosphere and the decrease in light extraordinary changes took place in regard to colour in the roof of a building. He had noticed the effect, particularly in bright red, in buildings of quite moderate height—in a church 35 ft. high, for instance—even in very dry and clear weather ; and in one case he had to introduce some yellow into the red as it climbed up. Colouring, as had been said, to be successful must be experimentally tested in situ. One could form a mental scheme which might be approximately correct, but the actual tints and tones must be experimentally arrived at in the building and repeatedly observed under different conditions of light, for no two days would be alike and one must arrive at an average condition of effect. He urged them strongly to study decoration as much as possible. It might be studied, amongst other places, in the National Gallery, by observing the minutiæ of some of the pictures there and the way in which the colour was caught up and repeated. As an instance of splendid decoration of a room, he would mention the Apartamenti Borgia, in Rome, an extremely good little model of which could be seen at South Kensington.

Mr. Rickards having made a few observations,

Mr. A. H. Hart, in proposing a vote of thanks, said that he welcomed the fresh indication of a more intimate understanding between the painter and the architect. Mr. Moira's explanation of why colour was and is employed in hot climates was interesting and seemed reasonable. Besides the effect of making everything black and white, strong sunshine had another curious effect, viz., that it made it extremely difficult to distinguish one surface from another, and one reason why the Greeks coloured their architecture was in order to emphasise the surface. One was apt to look at a Greek temple as a perfect thing in itself, with its beautiful proportions and perfect carving, and one did not seem to want anything else. We could not, however, judge properly such a work from an English standpoint ; a visit to Greece convinced one of the great brilliancy of the sunlight and the difference of the conditions. Mr. Moira's remark that necesssity is the mother of invention in regard to colour was much to the point, as also was his remark that where a landscape possesses much colour, a plain building acted as a relief. An architect who attempted to vie with Nature's colours in the ornamentation of a building in the country was presumptuous and certain to fail. Mr. Moira had not said anything as to colour in large towns, where a totally different condition of things existed, for there was not much in the way of beauty of landscape in large towns. The influence of colour in towns was most important, for it was a means of enlivening a dulness and monotony which were too often present, and which were increased by dirt and fog ; and anything which could be done by the artist to relieve such monotony was welcome. A field for the architect and decorator was open in the case of town buildings, and perhaps the best materials to use where there was dirt and fog were those with glazed surfaces, as those surfaces were cleaned by rainfall. He was sorry that so little had been said by Mr. Moira of mosaic decoration, and what was said was hardly favourable. Architects were convinced of the grand qualities of mosaic as decoration ; it had breadth and dignity, and, moreover, it was permanent, which was more than could be said of any other kind of painting : it was eminently an architectural decoration, and there were some splendid ancient and modern examples of its use. He was glad that Mr. Moira had emphasised the point as to the restrictions necessary in decorative painting, for it was of much importance that there should be those restrictions ; at the same time, if one insisted on it as absolutely necessary, some of the finest works of the past would be put aside. At any rate, we were quite safe in saying that the French ceilings of later date were in the worst possible taste, with characters from the classics and with distorted Venuses crawling round the coves, and it seemed unlikely that anything of the kind would be done again. Both Mr. Crace and Mr. Moira had called attention to the unsuitability of ordinary decorative pictures, painted in the studio, as adornments to buildings. There were many conditions attaching to a suitable decoration, which could only be worked out *in situ*, while the best works of the past were invariably painted on the spot and in fresco, and this demanded great celerity and was an excellent training for the artist. It seemed a great pity that in England fresco was so unsuitable, on account of the smoky climate, but other methods were available and had already been proved.

Mr. W. H. Seth-Smith seconded the vote of thanks. It was pleasing to find two such expert decorative colourists agreeing so thoroughly as did Mr. Crace and Mr. Moira in the great principle that such decoration must accord with the structure and must express it. Artists were supposed by some people to have no art principles, and that everything connected with their art was a matter of *feeling*. With that view he totally disagreed ; every great artist had—whether it was intuitive or not, whether it had taken a definite line in his mind, and had been argued out consciously or not—great principles which underlay everything he did, and no decorative artist would be any the worse colourist for having such principles as had been mentioned by the readers of the papers. These principles really regulated architects in their ordinary house decoration—in little matters like wall-papers, for instance, on the judicious selection of which a great deal depended—as well as in work of greater importance where they called in an artist to deal with it. He could not help thinking that the present French wall-papers, with their vertical lines and very often their beautiful and subtle patterns, were much better than our own wall-papers, which suggested no sort of structure. As to rococo ornament, Mr. Crace rightly said that it transgressed first principles ; to his (the speaker's) mind it was often repulsive unless it was most beautifully varied and subtly treated. He was very glad to hear Mr. Crace speak so strongly about the beauty and permissibility of extreme elaboration. This elaboration was seen in the Moorish ceilings in the Spanish palaces and churches, where there was extraordinary richness of colour, and yet perfect harmony and repose. Nothing that he knew of in Europe had impressed him more, perhaps, than those ceilings and their beautiful richness and yet sense of repose. In speaking about *recall* in colour, the great principle of repetition, Mr. Crace did not say very much about the principle of focussing—with a large body of red, for instance, in one part, one wanted to get a very definite spot of brighter red somewhere to focus it. That was very noticeable in Millais' great picture "Ophelia," where the red was focussed in the centre of the subject ; but in decorative work it was also an important principle, though how to do it in ordinary room decoration was not an easy matter. As to pictures, in decorating a room it was important to ascertain what pictures there were. In the pictures by Mr. Waterhouse, the painter, the principle of the repetition of a very few colours produced a beautiful decorative effect, and was very noticeable. It would be interesting to hear the views of the lecturers as to how far Nature's harmonies as a key and guide to decorative work might be relied on. In the humming-birds to be seen at South Kensington there was a wonderful variety of tone, and yet nothing appeared to be out of keeping, though in that connexion, of course, proportion was an important matter. There was a danger in designing decorative work in not putting a full-size cartoon in position before the work was executed, and recently he had been disappointed in seeing a blemish in an otherwise beautifully executed work, which would have been avoided had a cartoon been put up before the work was carried out. Interesting as Mr. Moira's theory was as to dress in relation to colour and climate, he did not agree that the Church had so much to do with the colour one saw in Spain and the South. The same principles which applied to Greece would apply to the Audalusia. As a result of fashion, partly, colour had largely gone out in costume, but no doubt it would re-appear again.

The Chairman said they were glad to have two such papers from men who had had real experience in the matter, and especially from Mr. Crace, who thoroughly entered into the side with which architects sympathised, viz., the subservient relation of colour to architecture. As to the value of structural suggestion in decoration, they were far too apt to lose sight of that, though it was becoming more and more recognised. It was being recognised in a sort of structural way by bringing out convenient lines and making panels of the work, as it were ; at the same time, that panel system was carried a great deal too far in some cases, such as our own theatres and music-halls —in the Lyceum Theatre, for instance. The

patches of landscape seemed wholly out of place in ceiling work, about which there should be a flatness. The invaluable thing in architectural decoration was to get flatness of surface. That was one of the points that artists far too often lost sight of, and their work became purely pictorial. There had not been much said that evening as to the value of gold, but all those who had had any experience in decoration must feel that gold had a great value in colour schemes and that it was simply invaluable in wall decoration. As to domestic treatment of rooms, one saw what could be done in that way even with such things as books, and the same room, in different owners' hands, often had a totally different effect by the placing of a little bit of colour here and there. The instinct of one occupant would get the harmony of colour which another would not feel. He welcomed that helpful feeling—that unity of feeling between architects and artists which was gradually coming back. It seemed ludicrous that architects, with their limited chances of education in colour decoration, should dictate to the artist what he was to do. At the same time it was equally ludicrous for the artist, with his very limited training in architecture, to dictate to the architect; and it was by the unity again of the two, each helping the other, that we are likely to get the hoped-for result. Architects must not trust too much to their own formed opinions of certain classes of decoration, but they should try and get the artist into absolute sympathy with them.

The vote of thanks having been put to the meeting and heartily agreed to, Mr. Crace, in reply, said he thoroughly agreed with Mr. Warren on the question of private houses. He did not wish to infer that it was less important for the house that the scheme of decoration should be carefully thought out; what he meant was that it was much less important to the public whether the thing was successful or not than it was in a building where one had already got the seal of another man's thoughts and ideas. He quite agreed with Mr. Warren's useful suggestion that it is particularly desirable that colour harmony from room to room should be a consideration; and he also agreed (he had insisted on this in a former paper) as to the value of the counterchange of colour, which was a most useful side of decorative art to study thoroughly. In regard to outside colour, as affected by climate, he thought that sufficient weight was not attached to the fact that the whole question of the scale of colour in bright sunshine or in moderate light was largely a question of the mechanical action of the eye. The pupil of the eye contracted or enlarged according to the amount of light. In a bright light colour had to be very positive in order that the eye might see it, whereas in the moderate light of a cloudy day very fine distinctions of colour could be seen. As to the same colour changing near the roof in a large hall, that arose from more than one cause. It was not only that the light itself diminished, but that the light in quality became reflected light instead of direct light. All reflected light, assuming that there was a white surface, became yellow, or orange yellow, in quality, and, in the case of the colour on the wall of a hall, the higher it went the more reflected light there was, while the direct light diminished. Therefore, other things being equal, white or light colours became yellower, and darker colours became by contrast more purple or grey in tone, and the decorator had to make allowance for that. The models at South Kensington, referred to by Mr. Warren, were excellent for study and they gave an opportunity for studying Italian decoration which we had not had in this country before. As to fresco decoration, the old Italian decorations which had been referred to were sometimes erroneously said to be frescoes; they were practically to a large extent *tempera*, and it was only within the limit of a comparatively few years that fresco was executed for decorative purposes. He certainly agreed that nature was a guide to be taken into account, for nature was the most important and useful subject of study; but we must take nature into account all round, with light and shade as well as colour. All nature was a necessary guide to the decorator, but especially the colouring of birds and plants. As to mosaic, he had not dealt with that because the subject was so large, but there was one point he would like to refer to, viz., that the last place in the world where mosaic ought to occur was nearly on the level of the eye—in a reredos in a church, say, for there one was almost bound to get a direct reflection of the light of the west window, with the result that when the light was on it everything was lost except the gold; the rest was a dark silhouette. Gilding was an invaluable adjunct in decoration, but nothing needed more care in its use. It was the most beautiful means of expressing leading lines—lines that wanted to be delicately emphasised—and of improving the harmony of the rest of the work, because it was always reflecting some other colour. When used, it must be used in reference to expression. He thought the gilding in the Queen's Hall was about as unfortunate as it could be, for the gilding was put on in spots, and nowhere was it used to express lines of structural form. All suggestion of construction was lost, and the eye was directed by bright patches, with the result that one wished for less gilding, though more might well have been used if it had been put in the right place.

Mr. Moira also briefly replied, and the meeting terminated.

The next meeting will be held on the 11th inst., when Mr. Alexander Payne will read a paper on "Egyptian Temples," illustrated by lantern views.

LEEDS.

THE following forms the principal portion of the paper read by Mr. John Hepper of Leeds, at the meeting of the Surveyors' Institution in that city last week:—

Historic Notes.

1080-1086.—Leeds a farming village, so described in Domesday Book.

1207.—In this year Maurice Paganel, Lord of the Manor, granted a limited charter to the burgesses of Leeds.

1626.—First Charter of Incorporation granted to the burgesses by King Charles I., by which the town and parish of Leeds were first constituted a municipal borough, the Council to consist of one alderman, nine principal burgesses, and twenty assistants.

1661.—Second Charter, granted by King Charles II., the Council to consist of a mayor, twelve aldermen, and twenty-four assistants.

1662.—The Council divided the borough into six wards, for the better relief of the poor.

1684.—The Charter of 1661 surrendered to his Majesty King Charles II.

1684.—Third Charter granted to the burgesses by King Charles II., the council to consist of a mayor, thirteen aldermen, and twenty-four assistants.

1689.—The third charter of 1684 superseded by their Majesties William and Mary, and the second charter of 1661 restored to the burgesses, and is still in force, except where it is inconsistent with or contrary to the provisions of the Municipal Corporations Acts.

1835.—William IV. The ancient charters above mentioned, together with those granted to other municipalities throughout the kingdom, were brought within the operation of the "Municipal Corporations Act, 1835," the council to consist of the mayor, aldermen, and councillors. Under the authority of the Act the borough was divided into twelve wards for municipal election purposes, with sixteen aldermen and forty-eight councillors.

1881.—Borough divided into sixteen wards, with sixteen aldermen and forty-eight councillors.

1893.—Her Majesty Queen Victoria, by her Royal Charter, conferred upon the borough the title of "City."

Superficial area of the city is 21,572 acres, and the circumference 31 miles. The city is almost entirely freehold, and the instances of copyhold and leasehold and of freehold ground rents are so infrequent that we are sometimes in danger of overlooking them, and so unpopular are they that building societies and mortgagees are chary of lending money upon them and buyers discount them.

The population of Leeds estimated to the middle of 1899 is 423,889, and its rate of increase is nearly 2 per cent., or about 8,000 per annum. Its proportion to area is about 19·65 per acre. In 1851 the rateable value was 420,411*l.*, being an average per head of 2*l.* 8s. 9½d. In 1899 the rateable value was 1,620,895*l.*, or nearly 3*l.* 16s. 6d. per head. The net debt of the city is 5,821,443*l.*, or 13*l.* 14s. 8d. per head. The rates levied by the Council and for poor rate and school board for the year ending March 25, 1900, are 7s. 2d. in the £.

It will be seen, therefore, that our debt is well secured, accounting for the low rate of interest at which the city can borrow and the high estimation in which its stock is held in the market, and this will be still more clearly understood by a consideration of the undertakings which the council has under its control, viz.:—

A splendid system of waterworks, which is well worth the inspection of any surveyor interested in such matters, and which represents a capital outlay of £1,964,656, and a daily available supply of twenty-eight million gallons, against a consumption (including compensation), of 24,936,000 gallons.

The gas and electric lighting works, equal to a capital expenditure of £1,639,190, and a source of considerable profit.

The tramways, on which there has been an outlay of over half a million, and which are being extended in all directions to the city boundaries. At present they are worked by electric, steam, and horse power, but the first is rapidly superseding the other two. They are well managed, and a great boon, as well as profitable.

The markets, viz.: Corn Exchange; the great General Market in Kirkgate, the principal frontages of which will shortly be rebuilt; the Victoria Cattle Market, which causes a yearly loss; the Wholesale Meat Market, which was opened last July; and a large and popular Fish Market.

Baths and wash-houses total up to £61,000, and are likely to be increased in number.

Upon allotments we have spent £7,216, but the result has been far from encouraging.

The Town Hall, the Municipal Buildings, Free Library, and Art Gallery form an imposing group, and will well repay an inspection; but, large as they are, they are so unequal to city requirements, that steps are being taken to provide new Assize Courts and other accommodation, which will entail an outlay of probably half a million, especially if they are to be built on the south side of Victoria-square, in front of the Town Hall, which is generally (apart from considerations of cost) regarded as the most suitable position.

City Improvements.

The rapid growth of the city has rendered necessary street improvements, transformation of localities, and rebuilding to an extent previously unknown in its history. So far as street improvements are concerned, it is satisfactory to know that the plan of buying a greater depth than was actually required for dedication to the public user has had successful results; indeed, in one case, Vicar-lane, where the width has been increased from about 29 ft. average to 75 feet, the surplus land resold has almost recouped the great cost of the improvement, and a similar result seems likely to accrue in other instances, without taking into account the enhanced rateable value which the improvements will occasion. During this present month of April the City Council has decided upon a most important improvement, involving the removal of the Roman Catholic Cathedral and its schools along with many other buildings between the end of Park-row and Great George-street, so as to widen Cookridge-street, get rid of a dangerous curve, and give greater freedom at a very busy junction.

The city improvements have in recent years been undertaken on a bold scale and with dispatch, a matter of great importance to public convenience, minimising cost, ensuring larger returns of capital, enabling a quicker settlement of localities, and the earlier creation of rateable value.

Sanitation

has claimed a large amount of attention for many years, and immense sums have been expended in sewers and sewerage outfall,* in providing depôts, in opening out culs de sac, in building stone culverts for becks and streams, in removing insanitary buildings, letting air into close neighbourhoods, and in providing at a cost of nearly 100,000*l.* fever, smallpox, and other hospitals and a sanatorium, and now the Corporation is engaged in acquiring the property of an insanitary area of about 16¼ acres on the east side of the city, which will probably cost us over 200,000*l.* more than can be realised by resale, unless more than is at present intended be devoted to business uses.

* Since this paper was written, the City Council has decided to purchase the Gateforth House Estate of 1,882 acres, near Selby, for 85,000*l.*, and to connect it with Leeds by a sewer, which at the rate of 8*l.* per yard will cost about 200,000*l.*

It is occupied by a population of about 3,800, for 2,000 of which it is expected provision will have to be made on the cleared area, or some substitution therefor. The Board of Trade regulations do not admit of back-to-back houses, which are so prevalent and popular here; blocks in flats on the London principle are contrary to Yorkshire habits and predilections; upon the land at such prices as the Corporation is likely to want, and with such conditions as it will probably impose, speculators will not be able profitably to build; philanthropists do not seem inclined to venture on the field; the Corporation is unwilling to engage in a great building scheme; investors object to public money competing with private capital; the people displaced are mostly poor and unable to pay the increased rents which will be required, and groan at the hardship of being removed from their old haunts and contiguity to their spheres of work; and it is foreseen that the overcrowding of neighbouring districts will create other areas as insanitary as that from which they will be expelled.

I am inclined to think that the Corporation will be compelled to devise and carry out a scheme for rehousing the disturbed poor, and those members of this gathering who have experience in such matters could not engage in a discussion more profitable to us than that which would throw light on this difficult problem.

The extension of the tramways with low fares will do much to relieve the pressure on the older parts of Leeds, and better the condition of the working classes; but to them and to all of us the abatement of the smoke—which obscures the sun, chokes our lungs, spoils our buildings, soils our stocks, and distresses our visitors—is of urgent importance, and needs much more attention than it receives.

I hope our Corporation will see how necessary it is in framing future by-laws to insist that streets in which back-to-back houses are to be built shall be more than 36 ft. wide,* or, better still, that they shall be 36 ft. wide with a 6-ft. area on each side, so that the houses shall be further apart and have more privacy than they possess when abutting upon the causeway. Of course the effect of this will be, not so much to increase the rent, as to reduce the price which the landowner will receive for his land; and it seems to me that the increment of value to the land caused by the increase of population should not go altogether to the landowner, but that some of it should be shared by the people in the form of increased open space, so that they may have more sun, more air, more room for movement, and so have better and more healthy conditions of life.

* * *

I desire now to draw your attention to some of the characteristics of Leeds, to which she owes so much of her success, apart from the practical, enterprising, persevering, and thrifty nature of her people.

Leeds is about equidistant from the English and Scotch capitals and from the eastern and western seaboards, and being served by all the leading railway companies, and having a continuous waterway between the two seas along the Leeds and Liverpool Canal from the west and the Aire and Calder navigation to the east, the city has become a great distributing centre, and has no superior in that respect. The easy gradients of the roads and the convenient positions of the railway goods stations and canal depôts are of great importance to commercial traffic, as where towns such as Bradford and Halifax require two horses per load, we use only one. Being on the edge of the great Yorkshire coalfield, our boilers, furnaces, and fires can be fed at the lowest cost. Ironstone and stone are within our borders, and still larger supplies are within easy reach; and no town can be more advantageously supplied with the vast extent and variety of materials requisite for a large range of manufactures. The immense deposits of clay suitable for bricks, fire-bricks, sanitary tubes and appliances, and pottery in various parts of the borough are a source of great wealth, not only because of the great home and foreign demand, but because we can supply ourselves at the lowest rates for our own building operations.

We are not subject to the violent storms and great floods of which we often read as occurring elsewhere, and are consequently saved a large amount of loss which others endure. We have pleasant suburbs in which to reside, and are within easy reach of the delightful pleasure resorts of Ilkley, Bolton Abbey, and Harrogate, and of a wide range of fine country for driving and cycling. Breezy moors are but an hour's railway ride from us, and the Bramham Moor Foxhounds meet within or close to our boundaries. With all these commercial, residential, educational, and recreative advantages, it is not surprising that we find the variety of our businesses increases, and that our population grows at the rate of nearly 8,000 a year.

That which does so much to ensure the stability of Leeds, and its freedom from sudden collapses of trade and employment is the large number and variety of influential manufactures which it possesses, and which keep all families more or less employed. So many of these trades require female labour, and there is so much employment for young people, that a family of an industrious character is never without employment for some or all of its members. The earning power, therefore, of a family is larger and more equably exercised than in the case of towns with one class of manufacture, and the distribution of money is more even and the capacity for saving increased, and consequently we seldom have those periods of acute distress which are experienced elsewhere.

An enumeration of manufactures carried on in Leeds and district will further illustrate this, viz.:—

Woollen and union cloths, blankets, carpets, felt druggets, and canvas.

Ready-made clothing on a gigantic scale; hats and caps; boots, shoes, and slippers in great and rapidly increasing quantity.

The tanning and manufacture of leather in every form, and from the lowest to the highest class, to such an extent that Leeds is looked upon as the head of the trade.

Forges for the making of boilers, boiler plates, rails, and railway rolling stock; heavy forgings of many kinds, steel, &c.

Works of great extent for the manufacture of railway, traction, tramway, pit, mill, and other engines; the most powerful hydraulic machinery for railways, docks and works of all kinds; engines, dynamos, and apparatus for electrical work of all descriptions; flour mill and oil mill machinery; brick-making machinery, steam cranes, steam ploughing, and other agricultural machinery.

Works in great number, and many of them extensive, for the making of engineering tools, small arms, torpedoes, flax, silk, woollen and other textile machinery, cycles, artistic and other light ironwork for domestic and decorative use; glass bottles, pottery, nails and screws, paper and paper hangings, &c.; large printing and lithographic works in considerable number.

Extensive works for the making of bricks, sanitary appliances, and beautiful forms such as the celebrated Burmantofts faience; chemical, dye, and drysaltery works; the alteration, extension, erection, and repair of buildings for such an enormous range of manufactures, the erection of more than 2,000 houses annually, as well as of shops, warehouses, &c., necessarily provide a large amount of employment.

Adding to all these the many employments in various associated handicrafts, collecting, distributing, shops, warehouses, and other industries, which it is unnecessary to specify, it will be readily seen that work must be steadier and more univeral in Leeds than in many other places, and it is not surprising that an artisan population trained amongst such a variety of occupations should acquire an adaptiveness of skill and intelligence which fits it for, and is constantly attracting to the city, new trades and manufactures, and thus widening its commercial influence.

I have often been asked by strangers the reason for the growth, the steadiness, and the prosperity of Leeds, and why we Leeds men have such confidence in our continued progress and in our freehold investments, as evidenced by the large number of years' purchase we give, that I have thought it might interest surveyors to have placed before them facts of which we have some reason to be proud, and which we necessarily take into account when we are dealing with the various interests in our charge.

HOUSING AND ALLOTMENTS SCHEME, MANCHESTER.—An inquiry into an application by the Manchester Corporation to the Local Government Board for power to borrow 36,000*l.* to enable the Corporation to purchase 237 acres of land at Blackley for housing and allotment purposes, was held on the 24th ult. by Mr. E. A. Sandford Fawcett in the Town Hall, Manchester. Evidence in support of the application was given by Mr. T. De Courcy Meade, the City Surveyor.

* Would it not be still better to pass a by-law against the erection of back-to-back houses at all?—ED.

THE SURVEYORS' INSTITUTION:

ANNUAL CONFERENCE, LEEDS.

THE third annual conference of the Surveyors' Institution was held at Leeds on the 25th ult. Shortly after ten o'clock the Lord Mayor (Alderman John Gordon) informally welcomed the delegates, who were presented to him in his rooms at the Town Hall. At eleven o'clock the conference assembled in the Council Chamber, where the Lord Mayor officially voiced the welcome of the city.

A vote of thanks to his Lordship was, on the motion of the President, Mr. T. M. Rickman, F.S.A., agreed to.

A paper was then read by Mr. John Hepper on "Leeds," the greater part of which is printed on another page.

A vote of thanks to Mr. Hepper was unanimously carried, on the motion of Mr. J. W. Clutton, of York, seconded by Mr. A. M. Fowler, of Manchester.

Mr. Arnold Statham, barrister-at-law, followed with a paper on "Nuisances and Noxious Trades." The object of the paper, the speaker explained, was to give a resumé of the law relating to those manufacturing industries and trade operations which either vitiate the atmosphere, or disturb the serenity, or pollute the water supply, or otherwise invade the rights of private individuals, or the public, to live under conditions where they should be free from molestation or annoyance. It explained in detail the nature of public and private nuisances, giving cases in point. With regard to air supply, the author said the occupier of a house was entitled not to claim according to mere considerations of delicacy or fastidiousness, but according to the plain, sober, and simple modes among English people. With regard to the pollution of water-courses, Mr. Statham said riparian proprietors, if there were any fortunately still surviving, who had hitherto enjoyed the use of water-courses in their natural state, were entitled to restrain the fouling of the water without proving that the pollution was actually injurious to them, and the fact of the stream being already contaminated by the refuse or discharge of other factories was no defence to an action to restrain considerable additional fouling by a particular factory; and although the owners of particular manufactories had acquired a prospective right to foul it, the fouling by them respectively must not be considerably enlarged to the prejudice of other people. The paper also dealt with the nuisances caused by noise, the collection of crowds, and the warehousing of inflammable matter. The question of proceedings in respect of the removal and abatement of nuisances was discussed at length, and the speaker concluded with a reference to the rights of public Corporations, and the liability of public bodies.

Mr. Howard Martin moved a vote of thanks to Mr. Statham, which was seconded by Mr. Bidwell, and a lengthy discussion followed, in which Mr. Chatfeild Clarke, Mr. John Hepper, Mr. H. Hanson, and Mr. T. Blashill participated.

The resolution having been adopted, the conference adjourned.

During an interval in the proceedings the members of the conference were entertained at luncheon by the Lord Mayor.

In connexion with the conference, there was on view in the old committee-room of the Town Hall a collection of views of "Old Leeds," lent by Mr. Richard Wilson, Councillor Denison, Col. Wilson, Mr. Lionel Teale, Mr. Henry Fowler (of Manchester), the Thoresby Society, and the Leeds City Council. Special mention may be made of Thoresby's extra illuminated copy of the History of Leeds, in seven volumes, lent by the Leeds Free Library Committee.

At the banquet, which was held in the Hotel Metropole, the chair was occupied by the President (Mr. T. M. Rickman), supported by the Lord Mayor of Leeds, the Vicar of Leeds, the Stipendiary Magistrate, Mr. Arthur Vernon (vice-President), Mr. A. Buck, Mr. C. Bidwell, Mr. R. Horsfall, Mr. William Wright, Mr. George Langridge, Mr. T. T. Wainwright, Mr. Howard Martin, the Hon. Edward G. Strutt, and Mr. Thomas Blashill; with Mr. D. Watney (past President), Mr. John W. Penfold (hon. secretary); members of the local Reception Committee, Mr. A. M. Fowler, Manchester (formerly Borough Engineer of Leeds), Mr. Thomas Hewson (City Engineer), and others.

The loyal toasts having been honoured, "The Navy, Army, and Reserve Forces" was given by Mr. Thomas Fenwick, and responded to by Lieut.-Col. W. H. Wellsted.

The President, in giving "The Lord Mayor and Corporation of Leeds," said they had heard during the day of the rise and progress of Leeds from a country village to the use of water power, and then steam power, and now electric power; of its increase of size, first four-fold, and then ten-fold, from a population of 4,000 to 420,000. The Corporation had wrestled with the problems of water power, steam power, and electric power, and he was sure they would be prepared to deal with whatever other forces of nature that could be found and utilised for the benefit of mankind.

In responding, the Lord Mayor expressed the opinion that Corporations were at present bearing upon their shoulders just about as much as they could carry. Let the Corporation deal with all such things as were practically a monopoly, such as the disturbance of the streets, or matters which affected the welfare or the health of all members of the community. But let them stop short of that stage. When anything went wrong, or any article was not to be obtained as cheap as some people thought it ought to be, people said, "Oh, let the Corporation take it over." He appealed to them all to assist in checking the over-weighting of our municipal Corporations.

Mr. Charles Bidwell gave "The Bench and the Bar," the respondents being Mr. C. M. Atkinson and Mr. Arnold Statham.

The Lord Mayor of Leeds proposed "The Surveyors' Institution."

The President, in responding, referred to the work done by the Institution in the direction of the education of the younger members of the profession.

The remaining toasts included "The Yorkshire Provincial Committee," which Mr. Arthur Vernon proposed and to which Mr. J. Farrer and Mr. C. H. Gott responded; and "The Guests," proposed by Mr. Howard Martin, and responded to by the Vicar of Leeds.

The following day the conference visited places of interest in Yorkshire. Four excursions were arranged, one to the Crown Point Printing Works, Messrs. John Fowler & Co.'s, Messrs. Greenwood & Batley's, the Leeds Forge Company, and Kirkstall Abbey. The second party went to Bramham Park and Templenewsam Park and house. Another party visited York, and another Sheffield.

ARCHÆOLOGICAL SOCIETIES.

DURHAM AND NORTHUMBERLAND ARCHÆOLOGICAL SOCIETY.—The annual meeting of the Archæological and Architectural Society of Durham and Northumberland was held on the 26th ult. in Bishop Cosin's Library, Palace Green, Durham. The Rev. Canon Greenwell presided. The Treasurer (Mr. J. G. Gradon) presented the annual statement of accounts, showing that the receipts for the year (including a balance in hand of 12*l.* 9s. 2d.) were 209*l.* 4s. 2d., and the expenditure left a balance of 17*l.* 18s. 8d. The statement was formally adopted. The election of officers then took place. On the motion of Mr. W. Scott, seconded by Colonel Rowlandson, the Rev. Canon Greenwell was elected President of the Society. Messrs. R. O. Heslop and W. H. Knowles were re-elected Hon. Secretaries, and Mr. J. G. Gradon Secretary and Treasurer. The Committee was re-elected, with the addition of the name of Mr. J. P. Gibson, of Hexham, to fill the vacancy caused by the death of Mr. Greatorex. The members afterwards selected the following places for the outdoor meetings of the Society in the ensuing season:—1st meeting, Lanchester, Medomsley, and Ebchester; 2nd meeting, Crake, Sheriff Hutton, and Raskelf; 3rd meeting, Holy Island; 4th meeting, Langley Castle, Stawardle-Peel, and Willimoteswick; 5th meeting (two days), Carlisle and Penrith. The President then delivered the customary address on the previous year's excursions. In the course of his remarks he mentioned that the Society paid a visit to Hexham Abbey, and took occasion to refer to the proposed alterations in the old Abbey church. He said that among other things it was proposed to add a nave to the church, and, in his opinion, it was a very proper addition to make. At the end of the fourteenth century it was proposed to build a nave, but it was never carried out. The rector of Hexham had gathered 31,500*l.* for the restoration or reparation of the Abbey, and it was very important that the money should not be wrongly spent. It would be a very sad thing if anything were done to injure the building, and so far as he was concerned he was perfectly satisfied that nothing of the kind would take place. Some of the members of the Society for the Preservation of Ancient Places had declared that Hexham was going to be ruined. However, they were determined to carry out the restoration or reparation upon the lines laid down, and in his opinion no person could accuse them of attempting to destroy this ancient church. He might say that no person had taken a stronger line against injudicious restoration than he had, but he assured them that at Hexham there would be no destruction, and what was going to be done was perfectly legitimate. It was proposed to bring back the church as far as possible to the condition in which it was before the more modern alterations and enlargements were made, and, in addition, to add two new buildings. One of these was a nave at the west end. This was rendered necessary by the want of accommodation for the congregation. He did not see any objection to this. It was intended in the fourteenth century to have built a nave, and if a nave was proper then, why not in the present century? There were objections to this, as there were to the proposed addition to the east end. At the east end it was proposed to build a small chapel. It was said this would destroy the proportions of the original building, but in his opinion it would not interfere with the proportions of the building in the slightest degree. This chapel was wanted as a place in which to hold services when they did not wish to use the whole of the church, and it would make a very desirable addition to the church buildings. As to the architect to whom the work had been entrusted, he was a man in whom he had the greatest confidence. He regarded him as one of the most reliable of architects. His work exhibited a considerable amount of artistic feeling, and he was sure he would suffer nothing to be done that was not favourable to the general effect of the building.

Illustrations.

ROYAL COLLEGE OF SCIENCE.

WE give the elevation, perspective view, and plans of this important building, together with the block plan showing the placing of it in relation to the adjoining public buildings.

The illustrations are from a frame of drawings which forms a central exhibit at the architectural room of the Royal Academy, and which are referred to more at length in the leading article in this issue.

CIRCULAR COURT, NEW GOVERNMENT OFFICES.

THE view here given, from a drawing exhibited at the Royal Academy, shows the intended appearance of the central circular court in the new block of Government offices on the Great George-street site, designed by Mr. J. M. Brydon. The plan and exterior elevations of the building will be found in our issue of March 25, 1899.

The circular court is 160 ft. in diameter, and is the central and leading feature in the plan. It will be approached by arcaded entrances from Charles-street, and ultimately from Great George-street; one of these entrances is seen in the view.

The court is placed axially with the great court of the Foreign Office. It will be faced throughout with Portland stone. When completed we have no doubt it will form one of the finest architectural effects in modern London buildings.

We may mention, in connexion with the subject, that the foundations contract for the new building has been let to Messrs. John Mowlem & Co. of Westminster, and the work is being rapidly pushed forward.

A BORDER INN.

THIS sketch was prepared in accordance with the modern requirements of an old inn among the hills on the Scottish border, which it is intended to rebuild.

As will be seen from the plan, the building provides a bar and coffee-room for passing tourists, with a small residential hotel for visitors, together with stabling and other accommodation necessary in an outlying district.

The materials intended were clean, square-dressed whinstone for the walls (partly taken from an old building on the site), with red freestone dressings from Moat Quarry, Dumfriesshire, while the roofs would be covered with red tiles.

A. INGLIS.

ART UNION OF LONDON.

THE annual general meeting of the members of this society was held at the Lecture Hall of the Society of Arts, John-street, Adelphi, on the 27th ult., for the purpose of receiving the report of the Council and for the distribution of prizes of works of art for the year 1899-1900.

Mr. Mackrell occupied the chair and, in the course of some opening remarks, referred with regret to the death of the late President, Lord Lothian, and to the resignation, in consequence of ill-health, of the Secretary, Mr. Ormsby Dunn.

Mr. F. L. Marriott, the newly-appointed Secretary, then read the report of the Council, from which we take the following portions:—

"It could not be expected that the extraordinary demands upon the public purse in connexion with the present war and Indian famine could be without their effects upon the subscription list of the Art Union, and the Council have consequently to face a somewhat diminished revenue for the year now closing. On the whole, however, the decrease is not serious, and bearing in mind that the claims of the various relief funds and the increased fiscal burdens of the country are of a character and extent to make an appreciable difference to the average individual, the Council feel that the Society is to be congratulated upon the loyal support which it has received. Even South Africa itself, in the midst of all its trying and absorbing cares, has not been forgetful, and the Society's agents in Cape Town deserve particularly warm thanks for the measure of success which, in spite of everything, they have achieved. . . . Notwithstanding the falling-off in subscriptions, the Council have been able, after setting aside the sum of £1,380 for engravings, &c., to provide £472 for prizes to be drawn for to-day, making with those awarded to unsuccessful members of ten consecutive years' standing, a total of 179 prizes. . . . Among the works of art specially selected by the Council for prizes are:—

A study from the picture of 'True and Loyal,' by F. W. Yeames, R.A., made especially for the Art Union by the artist.

A framed original water-colour painting, 'Mare and Foals at Play,' by H. W. B. Davis, R.A.

One bronze statuette, 'The Eagle Slayer,' by John Bell.

Six sets of elecro-silver Album Covers, designed by the late Miss Simpson.

Twelve Dragon Jugs, by Copeland, in Parian.

Twelve copies in terra cotta of the new statuette, by Mr. George Tinworth, 'The Jester.'

Twelve framed oxydised silver Bas Reliefs, 'The Descent of Venus,' by Etty, R.A.

Twelve Blue Doulton Ewers.

The copyright in all the above works is the property of the Art Union of London.

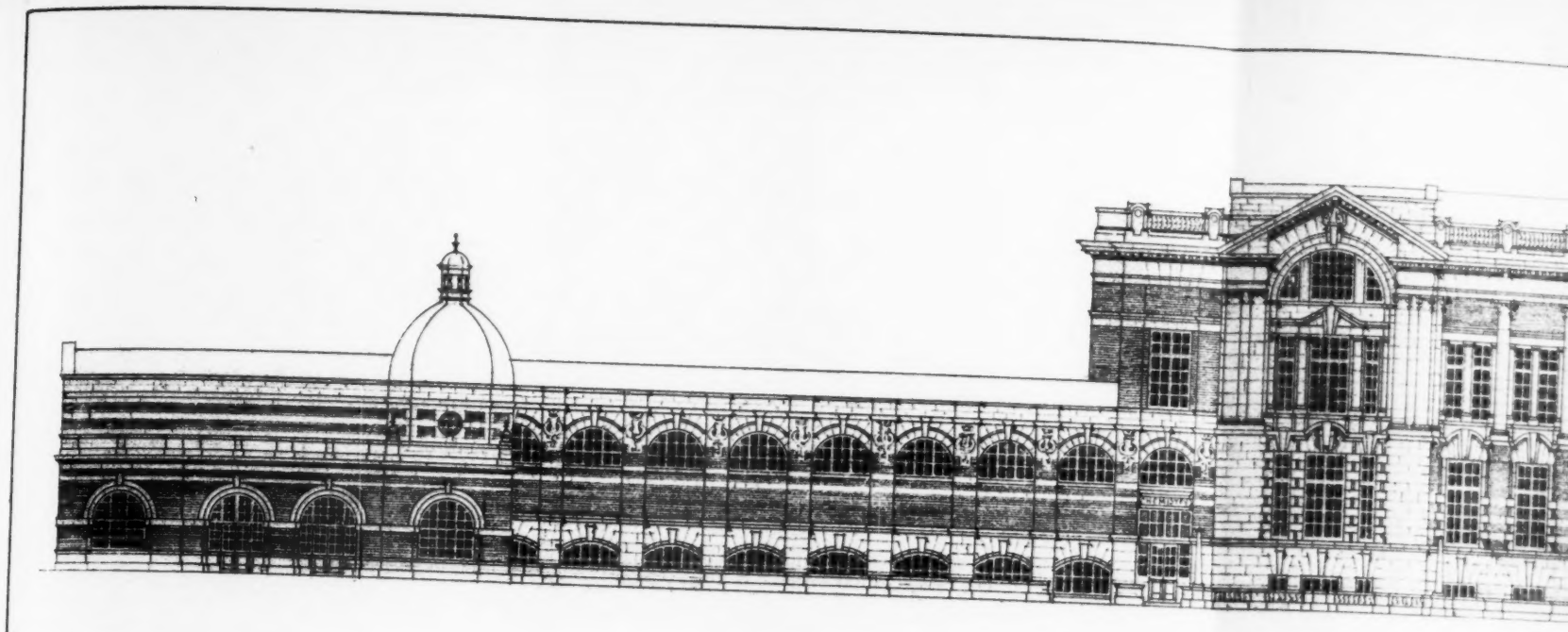
Several new pieces of pottery have been added to the list of the Society's works, and a more important acquisition has been Mr. George Tinworth's statuette, 'The Jester,' copies of which will be drawn for as prizes on the present occasion.

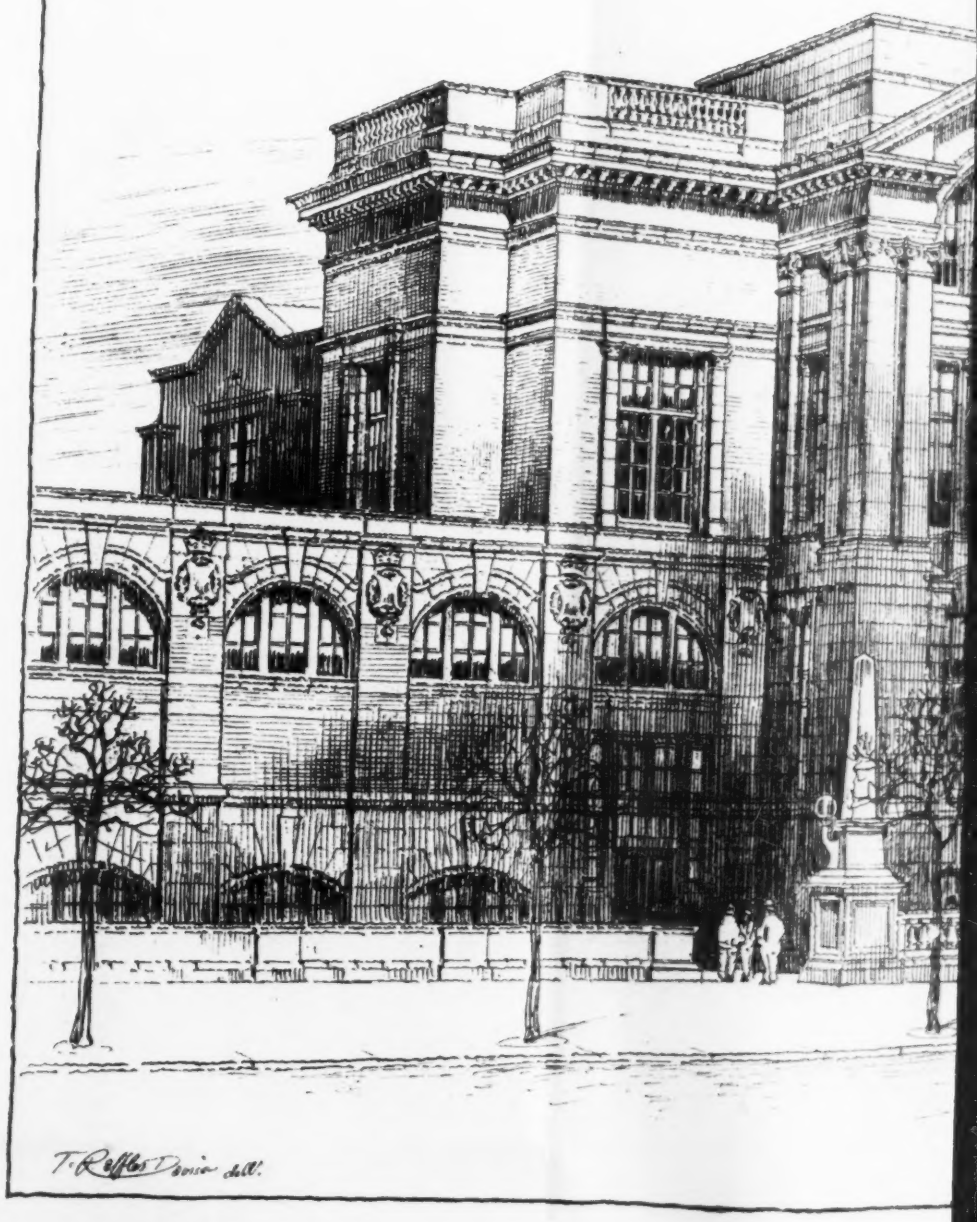
Arrangements have been made for a copy of 'The Jester,' and a set of the late Miss Simpson's Silver Album Covers, to be exhibited at the forthcoming Paris Exhibition, and a small selection of the Society's works has also been lent to the Committee of the Women's Exhibition at Earl's Court. . . .

Remembering the great popularity achieved by the etching of Mr. Clayton Adams' picture 'The Silver Dart,' some three years ago, the Council have purchased from that artist a companion work, entitled 'The Meadow Pool,' which will form the subject of next year's plate, while the original will be presented as the first prize in the drawing of 1901. . . .

The arrangement recently entered into for the letting of the ground-floor office, while it adds to the revenue of the Society, in no way impairs the efficiency of its administration. On the contrary, the concentration of the Society's entire collection in the spacious gallery on the first floor, with the clerical staff at hand for reference, will be of the greatest assistance to members in making a selection of the works they wish to acquire. . . . .

There is a feature in the outlook which is not without promise for the Society. There can be no doubt of a gradually growing feeling that the mechanical reproductions which have been so marked a development of the last twenty years, have in themselves small genuine title to be considered as works of art. A photogravure is, after all, little more than a photograph; a

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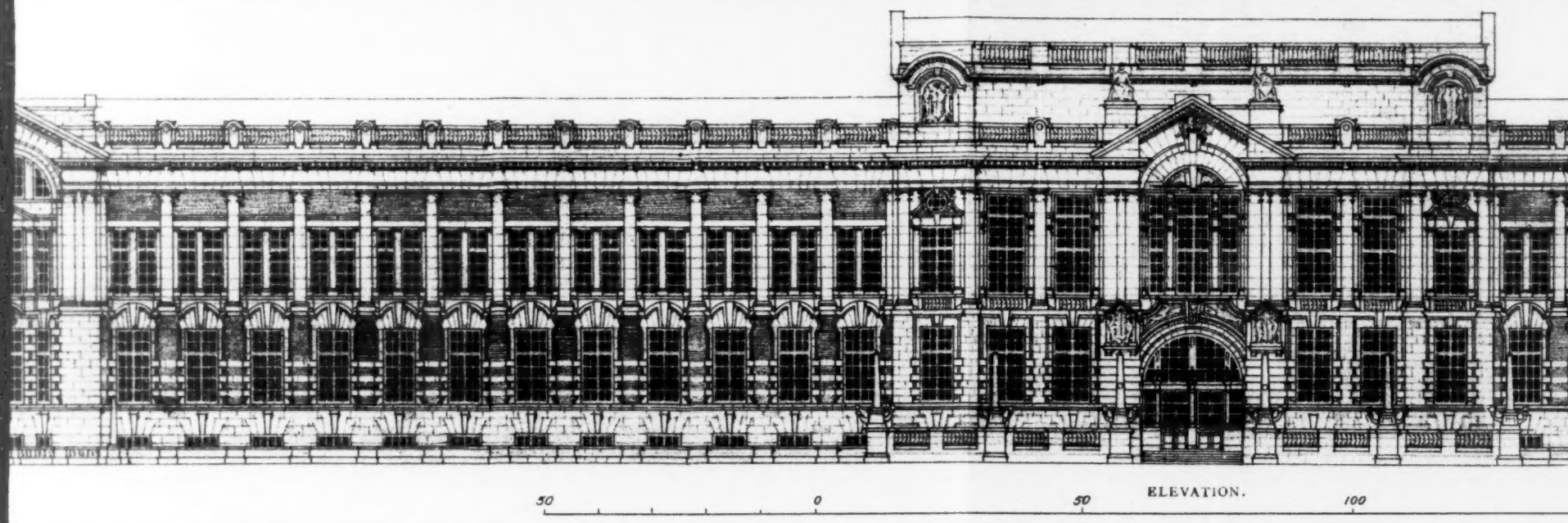

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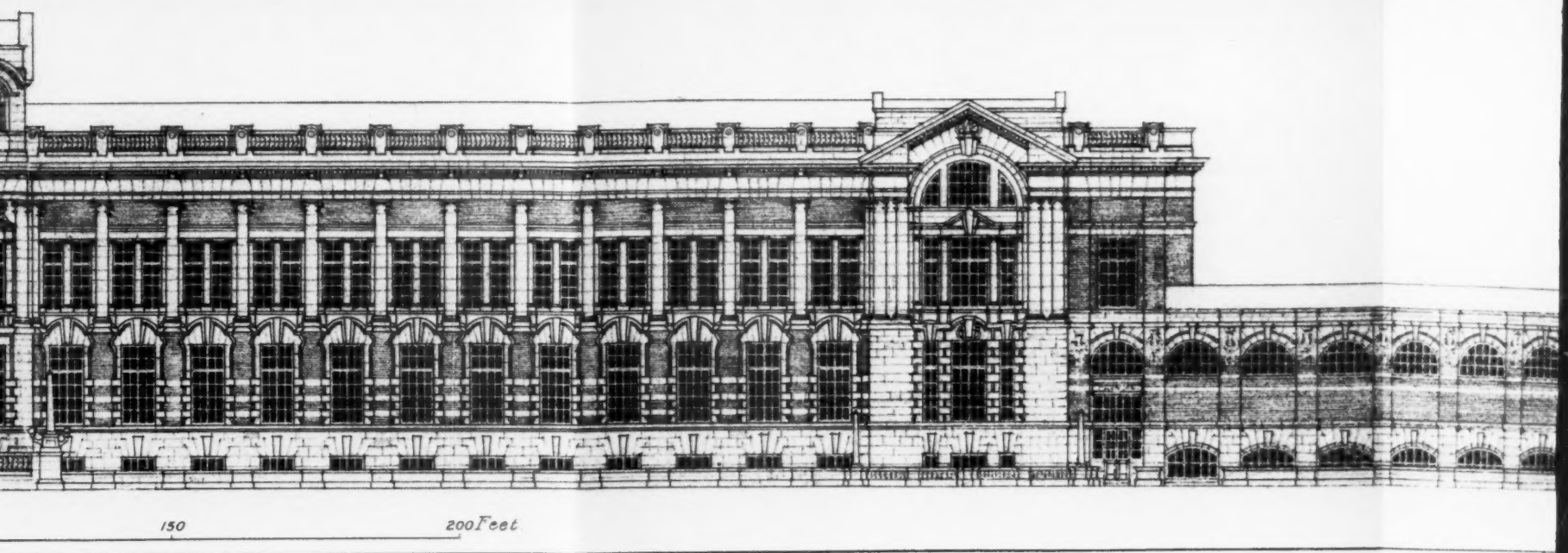
ELEVATION.

PERSPECTIVE VIEW.

NEW BUILDINGS FOR THE ROYAL COLLEGE OF SCIENCE, IMPERIAL INSTITUTE ROAD, SOUTH KEN



150 200 Feet

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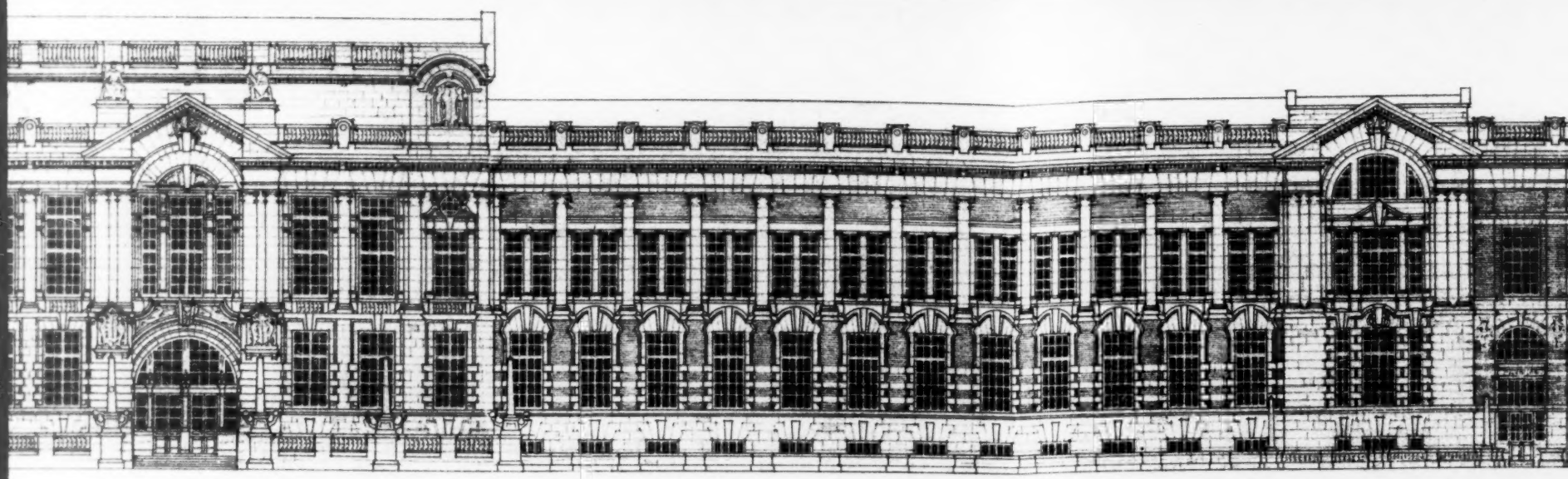

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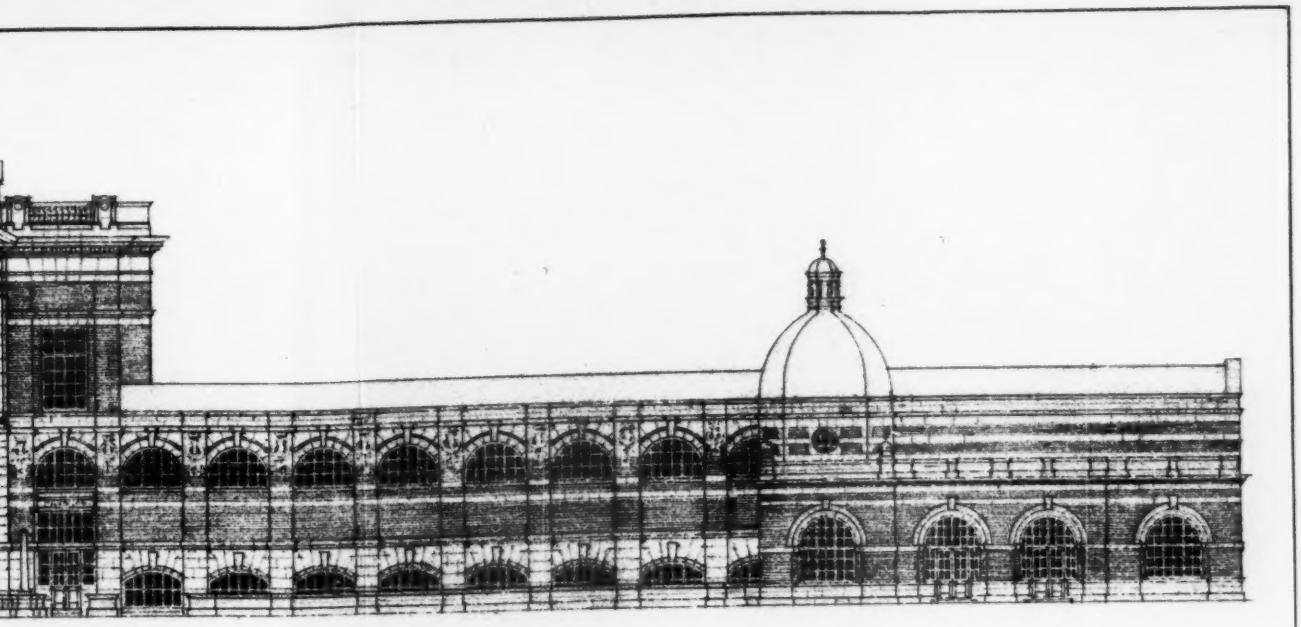
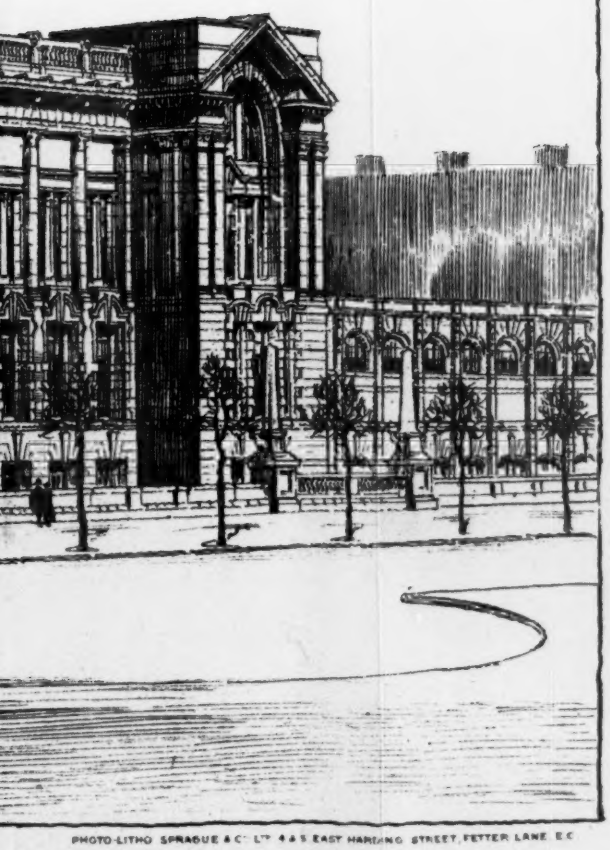
PERSPECTIVE VIEW.

CE, IMPERIAL INSTITUTE ROAD, SOUTH KENSINGTON.—Mr. Aston Webb, A.R.A., Architect.





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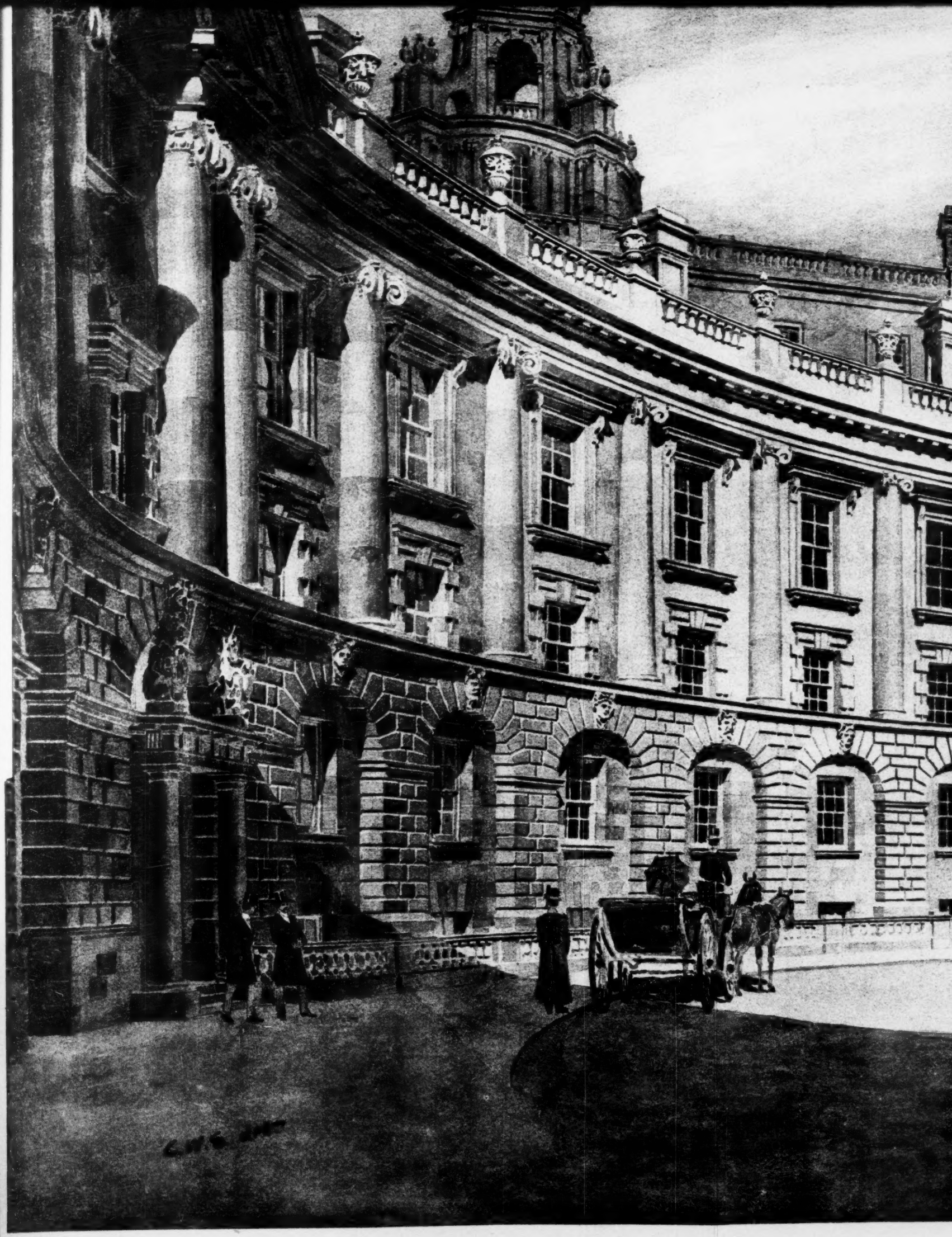
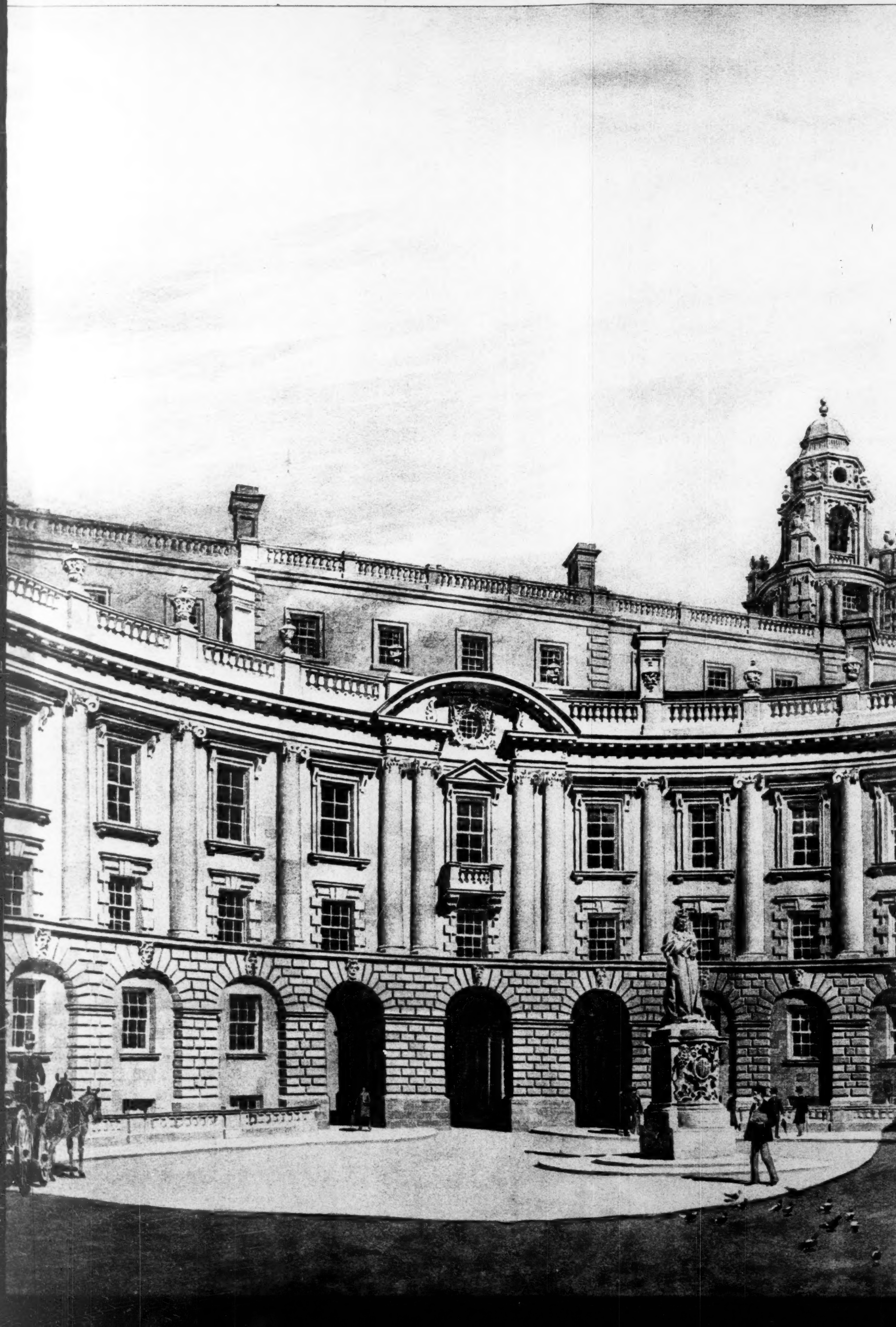


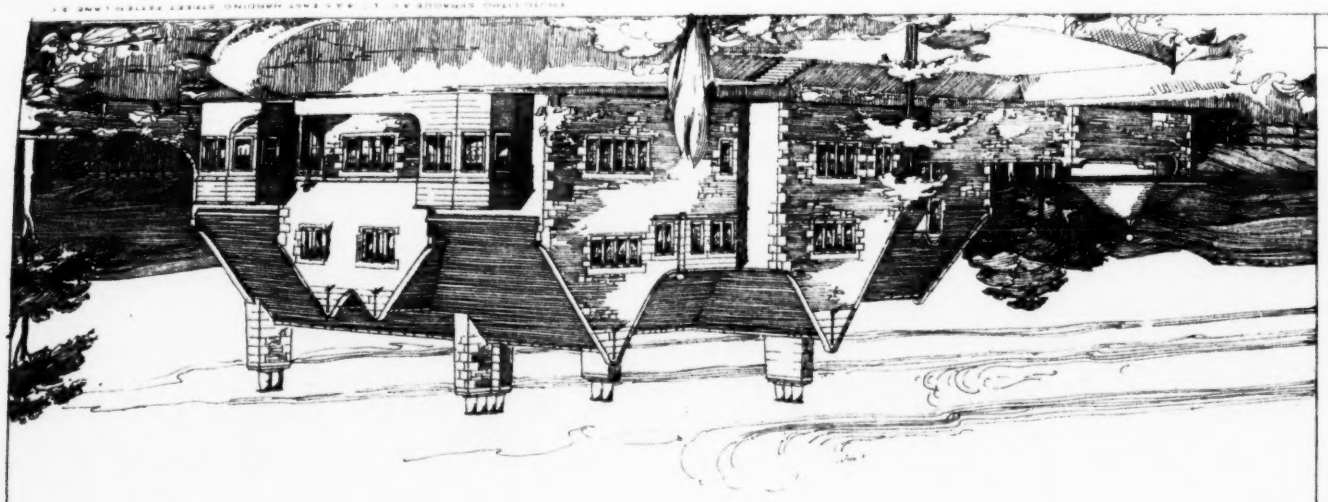
NEW GOVERNMENT OF

ENT OFFICES, GREAT GEORGE STREET: THE CIRCULAR COURT.—Mr. J. M. Brydon. F.R.I.B.A., Architect.

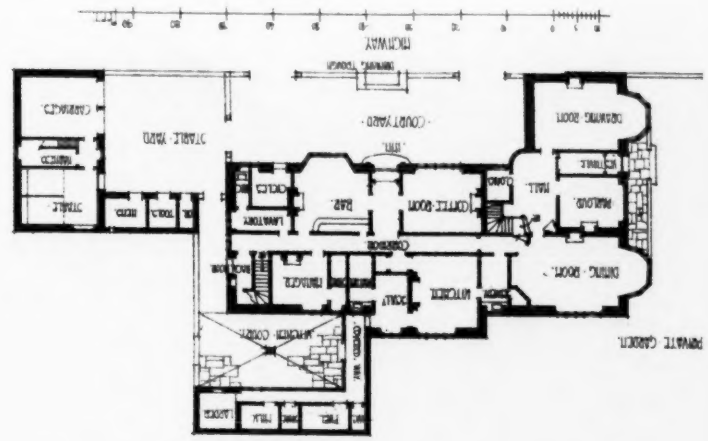


J·M·BRYDON· Archt

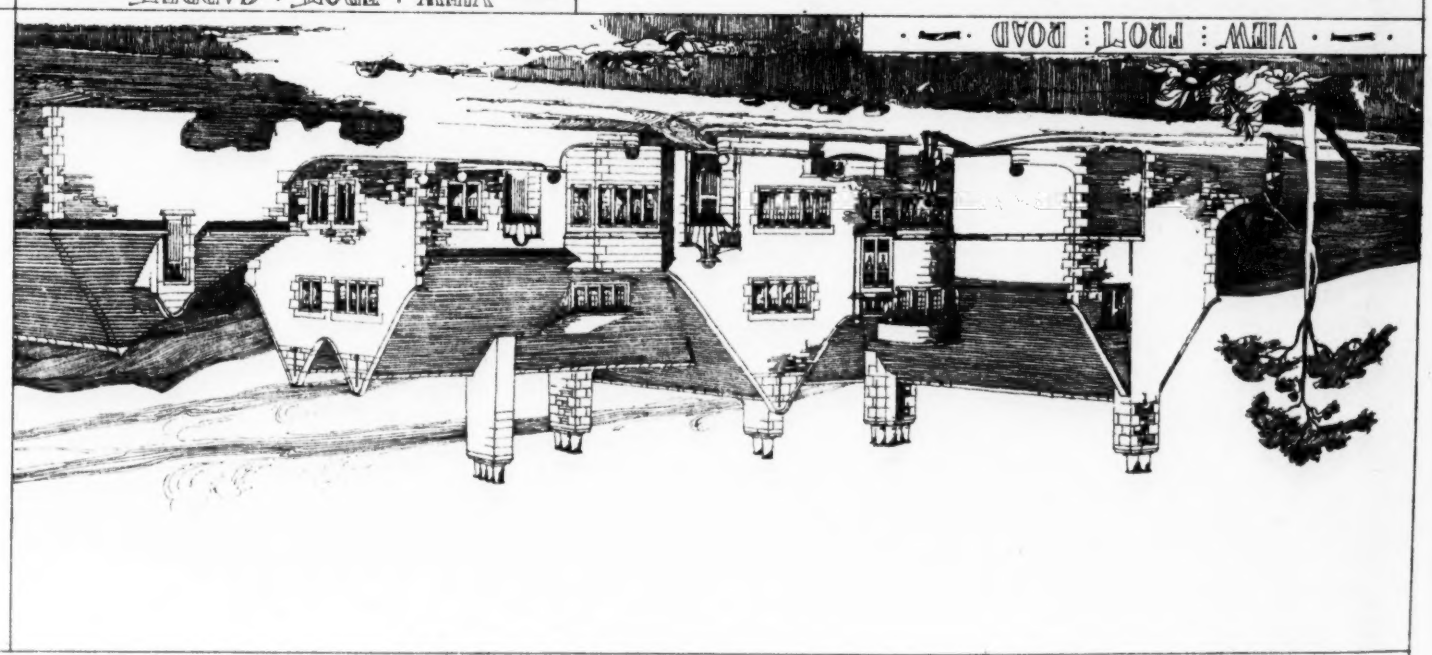
SKETCH FOR A PROPOSED BOOKER IN



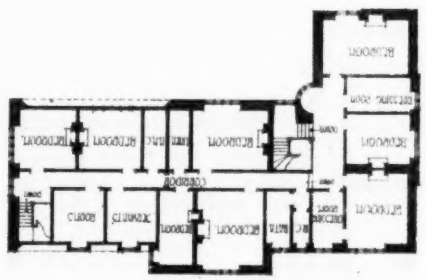
GROUND PLAN



VIEW FROM GARDEN

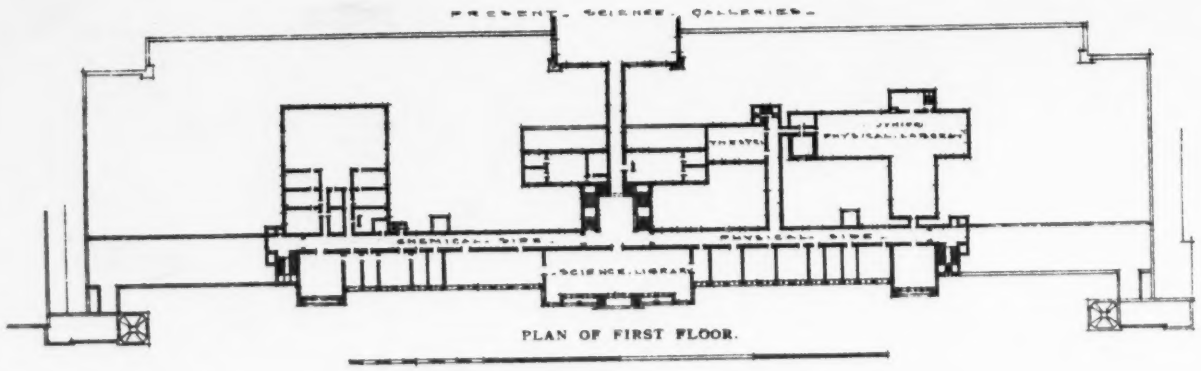


VIEW FROM ROAD



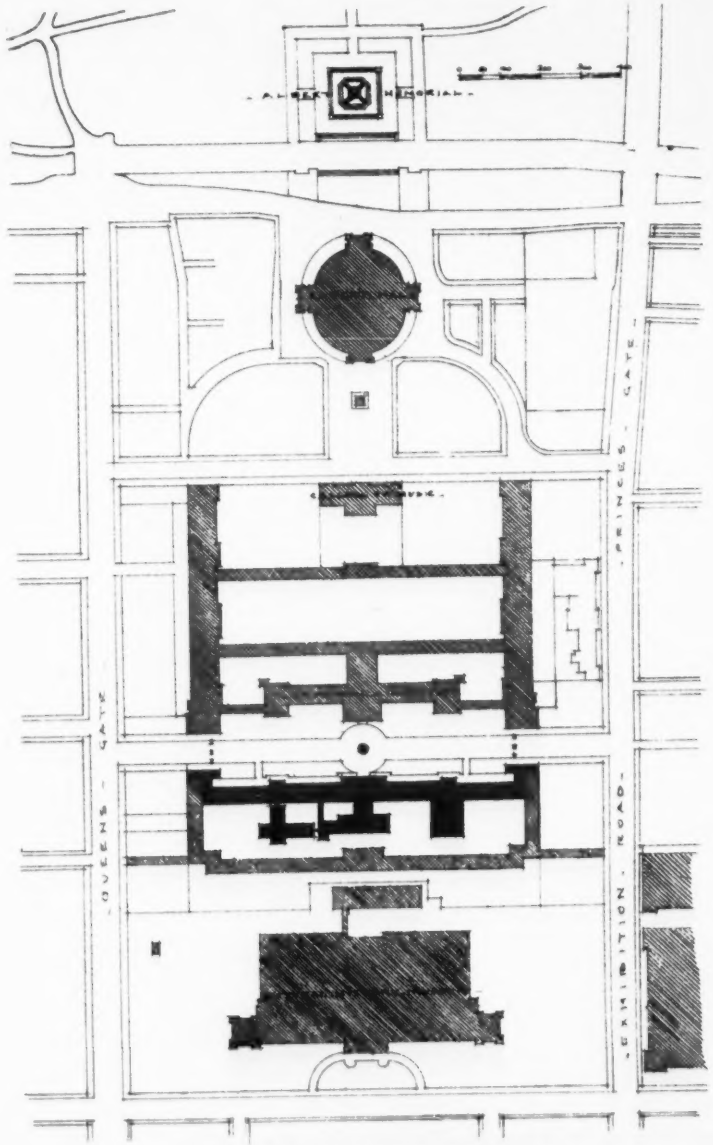
BEDROOM FLOOR

Mem Bridge Inv. 2 Coll. Journal 1900



PLAN OF FIRST FLOOR.

GROUND PLAN.



BLOCK PLAN SHOWING POSITION OF NEW BUILDING AND ARRANGEMENT OF SITE.

PHOTO-LITHO. SPRAGUE & Co LTD 4 & 5 EAST HARDING STREET FETTER LANE E.C.

NEW BUILDINGS FOR THE ROYAL COLLEGE OF SCIENCE, IMPERIAL INSTITUTE ROAD, SOUTH KENSINGTON.

MR. ASTON WEBB, A.R.A., ARCHITECT.

picture whose lines are drawn in a comparative instant of time by the clever manipulation of a flash of light, and its relation to the product of the infinite labour, skill, and patience which the etcher's needle must bring to bear, is distant indeed. On the other hand, however, photogravure has, by reason of its essential cheapness, been employed in countless directions where the more costly methods of etching or engraving would have been out of the question, and in that way has done much to popularise art and artists and to spread an interest in pictures generally. By thus creating an art interest in fresh quarters, where, by-and-by, in the natural course of things, a higher form of art should step in and continue the work of education, the dissemination of process pictures has increased the potential clientèle of such institutions as the Art Union. It can scarcely be said that, as yet, the outer fringe of the picture-loving public has begun to feel very keenly the comparative tameness and insufficiency of photogravure, but the feeling is certainly taking hold of the inner circle, and as it spreads, as it inevitably must, the opportunities of a society like this, which, to its honour, and frequently to its cost, has rigidly adhered to the highest standards of black and white work, must, as inevitably, increase also. . . . "

In moving the adoption of the report, the Chairman said, as to some of the prizes to be drawn for, that Messrs. Doulton had succeeded in introducing a glazing which did not necessitate the use of lead. The discovery would doubtless be instrumental in getting rid of the dreadful effects of lead-poisoning brought on in the process of glazing by the old method.

Mr. R. Biddulph Martin, M.P., seconded the motion, which was agreed to.

The Chairman next submitted a resolution recording the regret of the members at the death of their President, Lord Lothian, and offering their condolence and sympathy with his family.

The resolution having been carried in silence, the Dean of St. Paul's was re-elected a Vice-President of the Society, and the members of Council were re-elected, with the addition of Mr. Felix Clay.

Votes of thanks were then passed to the hon. secretaries, Mr. John Sparks and Mr. T. Buxton Moorish; and the Council of the Society of Arts for allowing the meeting to be held in their Lecture Hall.

The prizes were then drawn for.

A vote of thanks to the chairman concluded the proceedings.

INSTITUTION OF HEATING AND VENTILATING ENGINEERS.

A QUARTERLY meeting of the Institution of Heating and Ventilating Engineers was held on Tuesday at the Holborn Restaurant, Mr. D. M. Nesbit, M.I.M.E., President, in the chair.

The minutes of the previous meeting having been read and confirmed, the following gentlemen were elected:—as Members: Messrs. D. Burns, Gray, Lea, H. A. Parker, and J. Wenham; as Associates: Messrs. S. W. Robinson and S. Scholes.

President's Address.

The President then delivered a short address. Having thanked the members for electing him as President, he said, in speaking of the Institution, that he hoped that they would secure a thoroughly good technical society, where they could interchange ideas with each other more than had been done formerly in the heating and ventilating profession. Proceeding, he said:—

"I think that I cannot do better than mention to you some of what I believe are apparent defects, as I see them, in our profession. Let us take radiators. I am sure many members here will endorse my remarks when I state that a radiator, which is a first-class article for steam, is often a very bad one for hot water, and *vice versa*. . . . I know a case in the North of England where an architect, a friend of mine, who has just erected a public building in which the contracting heating and ventilating engineer allowed 10 square feet of heating surface per 1,000 cubic feet of space, but he could not get the building warmed satisfactorily. I am satisfied the radiator in this job is unsuitable for hot water circulation. Again, I think we should insist upon manufacturers guaranteeing a certain amount of actual heating area in each section or loop, not merely mentioning a rating which is practically of no value to an engineer who has to give a guarantee to his client to perform certain work. This has been a vexed question for many years in the United States of America—the home of the 'Radiator' trade—and many of the heating and ventilating engineers in that country have complained to me bitterly of the apparently false ratings of radiators in certain makers' catalogues. I think also that all radiators should be tested by an independent authority—indeed, by a specialist—under fixed conditions; that his decision should be final, and the heating trade should reject any radiators that do not bear such test or 'hall' mark. It is no more to ask for this test of radiators than it is to ask for a test with a girder, column, or high-pressure boiler.

Similar remarks might be made about the various kinds of heating boilers that are placed before the engineering trades. Many of the boilers catalogued will not perform their duty up to anything like the figures which are stated. In regard to boilers, my idea is to use the simplest form possible—good waterways, free as they can be from 'twists' or 'turns,' and with proper access for cleaning; and, above all (if my remarks should reach the boiler-makers of this country), let me advise them to increase the size of the smoke-nozzles, as nearly all the present nozzles are too small, especially for a soft coal such as is used in the majority of cases in England. The mountings, too, on our boilers might have more thought and care bestowed upon them than has been the case formerly.

I think that cast-iron socket and spigot piping should be discontinued for all sizes up to and including 4-in. internal diameter for all good installations, whether they be for steam or hot water. I consider wrought-iron pipe should be used in preference to cast-iron. For conservatory and similar work, however, perhaps the ordinary cast-iron socket and spigot pipe would suffice.

I think the time has now arrived when this society ought to take in hand the standardisation of all flanges and diameters of pipes and the pitch of threads which should be used in our trade. This has been accomplished in the United States with great success, and also economy to the makers and users of such goods. I am satisfied if the makers in this country had the facts put before them they would at once see the reasonableness of this suggestion. I would recommend for consideration that this society appoint a committee of standards, and if it so determine I shall be most happy to serve on the committee, and give time to a project that would secure uniformity in this class of work.

I would like to see this society have a 'Form of Specification' that we could send to architects as a specimen, so as to place all contractors on the same level or plane. At present our contract work is done oftentimes in a somewhat careless fashion; hence there is liability for mistakes, misunderstandings, and what might be termed 'sharp practice.' There are many matters relating to buildings that have to be warmed and ventilated which are common, therefore I do not see why a stereotyped 'Form of Ventilation' could not be devised to cover practically all installations.

I am afraid that the heating and ventilating engineers in England are not as particular as they should be in regard to the terms of contracts they are asked to undertake, from lack of unity in resisting some of the stringent clauses inserted in contracts by public bodies or their officials which they are compelled to agree to. This is a point we are rather lax about in England. I contend that when a contract is made between A and B, B performing his portion of the contract, it is not too much to expect A to perform his part under the stipulated terms which may have been laid down.

These are serious matters to us as heating and ventilating engineers, and I would suggest that a committee be formed specially to consider this question, with a view of laying before the Council and the members as a body some useful rules for the guidance of heating and ventilating engineers in making contracts.

In mentioning this, I do not wish that our Institution shall become tyrannical, or be at all dictatorial to their clients. I feel sure that if a committee were appointed to consider this subject, and proper rules were prepared, it would be possible to get an audience with some of the members of the Royal Institute of British Architects, so as to discuss matters and come to a common understanding.

Now with regard to our Technical Schools. I should much like to see these take a more practical view of matters germain to the building trades, and let them become more practical than they are at present. We have no schools in this country yet where practical hot-water heating, hot-water services, or steam heating is dealt with; our boys and men are allowed to grow up, I fear, somewhat in ignorance of what is going on around them, and in many cases have missed some of the most salient points of their business or profession by paying attention to lesser subjects. Domestic hot-water circulation work has not had, in some instances, that serious attention given to it which it deserves, and it only requires a good, practical man to look round some of the installations that are erected from time to time in various parts of the country, and see how poor they are in design, in execution, and in workmanship. Endeavours are being made to make this portion of the heating and ventilating engineer's trade a part of another allied trade—better called monopoly—but I hope our members will be loyal and steadfast in their purpose, and not be disposed to give up their title to a branch of business that really belongs to them. . . .

Again, I have seen, heard, and read of disagreements at one or two of our technical schools. In some cases the journeymen of a certain trade have objected to apprentices learning their art at the evening classes for fear they should become better men than themselves, and they, the journeymen, be thrown out of employment. Further, some apprentice students would not allow other boys to attend the classes to which their business was somewhat remote. Surely this is not going to be tolerated, either by the teaching staff or by the body of gentlemen who govern such institutions. It is only necessary to bring home to the students themselves that such a course is the most suicidal and despotic that could ever be devised, and if carried out, or even tolerated, we as Englishmen would soon lose the reputation that has stood us in such good stead in past years. . . . The Technical Schools are public property and supported by public funds, and the means of entrance into such an institution must be as free and as open as is possible to the very poorest boy or girl so long as they conduct themselves properly, and with that morale which is expected of all students. We should try and rid ourselves of many of these class distinctions, letting our object be for the good of the greatest number. . . . Who knows but that the assisted one may be a Faraday, a James Watt or Robert Stephenson, or indeed equal to some of the greatest scientists England has produced. Might we not find in our Art Schools a rising Sir Joshua Reynolds, Lord Leighton, or a Sir John Millais, whose very names should help and stimulate a youth in his ambition to reach a pinnacle of at any rate fame, if not actual wealth? . . .

I would urge with all the force at my command all men connected with industrial pursuits to be on the alert, ready and willing to cheapen and improve this or that commodity, because, as certainly as we are here assembled to-day, there are many pieces of mechanism coming into this country to stay, and it behoves everyone—master, foreman, workman, apprentice, or labourer—to look after and prevent 'waste' or unprofitable work of ever kind. . . ."

Mr. Jones, in congratulating the President on his address, said that the remarks about standardisation were very important, and it was most desirable that something should be done in the direction indicated.

Mr. Maguire said that one of the many matters referred to in the address had already been taken in hand by the Council—viz., the endeavour to induce members of the heating trade to join together and assist the Institution in an effort to bring about a better state of things in regard to application for contracts and specifications. Heating engineers were applied to by architects, Corporations, the Government itself, and invited to compete with each other and cut down each other's price, in order that the very lowest tender might be obtained. The trouble and expense involved and wasted in that was considerable, and the Council of the Institution were taking steps in the matter with the hope of bringing about a change which would be satisfactory to everybody. America was freer than this country in trade matters. All the trades here seemed to be governed by the societies.

The President said that he considered the question of standardisation a most important one. As to technical schools, it really seemed too bad that trade jealousies should stop honest endeavours to promote the good of students.

Well-managed technical schools were of great benefit to the country at large, though cramming should not be allowed in them.

A discussion then took place on a paper read by the President at the January meeting, entitled "Heating by steam at or below atmospheric Pressure."

It was arranged that a summer meeting of the Institution should be held in London on July 10 and 11, when papers will be read by Messrs. F. Dye (on "Domestic Hot Water Supply") and J. Nelson Russell. The papers will be read on the first day, and a dinner will be held in the evening; and on the second day visits will be made to various buildings for the purpose of inspecting heating and ventilating installations.

The meeting then concluded. In the evening the members dined together.

THE BUILDING TRADES' GIFT TO THE NATION.

WE are asked to publish the following additions to the list of contributions. We are informed that the building operations will now be immediately commenced, and the executive is putting itself into communication with the various donors as to the delivery of materials, &c. In order to facilitate delivery and save cartage, a special siding has been laid from Bisley station right on to the site of the homes, the necessary permission for this having been granted by the War Office and the National Rifle Association, as adjoining owners. On this account all deliveries originally intended for Brookwood station should now be made to Bisley station.

Additional Contributions for Individual Sections of the Work.

Messrs. Cafferata & Co. (Newark-upon-Trent).—The whole of the Plaster of Paris, Keene's and Parian cement, for the whole of the homes.
South Staffordshire Blue Brick Masters' Association (West Bromwich, Staffs).—25,000 blue bricks.
Messrs. Dixon & Co. (Liverpool and London).—A 50-ft. iron church.
Messrs. Anselm, Odling, & Sons, Limited.—The marble steps for the six homes.
The London Sand Blast Decorative Glass Works.—The whole of the ground glass for the homes.
Messrs. Smith & Turner.—Sets of hinges for the homes.
Messrs. Bolding & Sons, Limited (second gift) (per Mayor of Windsor).—A bath and appliances.
Mr. William Willet.—A staircase for a home.

For the Equipment of the Homes.

Messrs. Burroughs, Wellcome, & Co. (per Mayor of Windsor).—No. 20 tabloid medicine chest, fitted complete.
Messrs. Elkington & Co. (per Mayor of Windsor).—Eighty table forks, eighty dessert forks, eighty dessert spoons, eighteen table spoons, eighty tea spoons, twelve salt spoons, twelve egg spoons, six sauce ladles, two soup ladles, four gravy spoons.
Herbert Mappin, Messrs. Mappin & Co. (per Mayor of Windsor).—Eighty table knives, eighty dessert knives, carvers, and forks.

Additional Subscriptions.

	£	s.	d.
Workmen of Mr. Frank Hawkey (Surbiton)	11	0	0
Mr. T. L. Green	10	10	0
Mr. Frank Hawkey (Surbiton)	10	0	0
Workmen of Messrs. J. W. Falkner & Sons	6	18	9
Workmen of Messrs G. E. Wallis & Sons (Maidstone)	5	6	10
Workmen of Mr. T. L. Green	5	5	9
Mr. George Nelson Watts (Notting Hill)	5	5	0
Mr. Alfred Bush	5	5	0
Mr. George Axton (Shepherd's Bush)	5	0	0
Messrs. G. E. Wallis & Sons (Maidstone)	5	0	0
Workmen of Mr. William Shepherd	4	10	0
Workmen and staff of the Crittall Manufacturing Company (Braintree, Essex)	4	7	0
Workmen of Mr Henry Gough (Wolverhampton)	4	0	0
Workmen of Messrs. G. Woolliscroft & Son, Limited (Hanley, Staffs)	3	7	10
Messrs. Flint Bros. and workmen	3	3	0
Workmen of Messrs. T. & W. Farmiloe, Ltd.	2	12	9
Workmen of Messrs. T. Rider & Son (per Mr. Roberts)	2	5	0
Mr. S. Powell and workmen (Bedford Park)	2	2	0
Workmen of Mr. H. J. Appleton	2	0	0
Mr. George Ashby and workmen	1	13	6
Workmen of Mr. Stanley G. Bird (per Mr. G. J. Newson)	1	10	0
Workmen of Mr. G. Nelson Watts, Notting Hill (per Mr. G. E. Napier)	1	8	6
Workmen of Messrs. W. Scrivener & Co., Regent's Park	1	2	9
Mr. T. H. Batstone, Willesden	1	1	0
Mr. F. R. Blunt, Leeds	1	1	0
Workmen on the Redstone Park Estate, Redhill	1	0	0
Workmen of Mr. William Hall, Liverpool		16	4
Workmen of Messrs. William Thornton & Sons, Liverpool		15	0
Workmen of the late Mr. Edward F. Woodward, Bristol		12	0
Mr. E. Parsons, Ramsgate		10	0
The Painters in the employ of Messrs. T. Rider & Son		7	0
Two Friends		2	6

BOOKS RECEIVED.

SIXTH ANNUAL ABSTRACT OF LABOUR STATISTICS OF THE UNITED KINGDOM: 1898-99. 11½d. (Eyre & Spottiswoode.)

PRACTICAL BUILDING CONSTRUCTION. By John Parnell Allen. Third edition, revised, 7s. 6d. (Crosby Lockwood & Son.)

Correspondence.

To the Editor of THE BUILDER.

THE NAMING OF THE NEW STREET FROM THE STRAND TO HOLBORN.

SIR,—At a recent meeting of the London County Council reference was made to the naming of the new street from the Strand to Holborn, and it was suggested that, as the millenary of King Alfred would be celebrated next year, the name of King Alfred should be associated with the new street; and a suggestion has also been made that one of the interesting local associations abounding in the neighbourhood—historical, literary, and dramatic—might be perpetuated in the name of the new street. I trust that such spurious mintage will not be perpetrated.

The principle of the bestowal of place-names and street-names should be that of our Celtic, Saxon, and Scandinavian predecessors—the application of some mere demotic term incogitantly and almost unconsciously selected, but consentaneous with that which had to be defined. This wise did the Strand and Holborn come by their names, and I trust that the new street will come to be known by some name as lawfully begotten as the names of those two old streets between which it will form a thoroughfare.

Our Saxon predecessors (and our betters in local terminology) were content to call that side of a certain thoroughfare on which were situated the shops, Cheapside (from Anglo-Saxon *ceap*—price, sale) and the east saleplace or market they called Eastcheap; the street in which the coalmen or charcoal burners sold their goods was known as Coleman-street, and other streets abound indicating the *fons et origo* of their names. Amongst many I may cite Fleet, Windmill, Brook, Moorgate, Fish, Bread, Milk, Camomile, and Wormwood streets; Sherbourne, Moor, and Leather lanes; Walbrook, Barbican, London-wall, Aldgate (the Old Gate), Tower Hill, Horseferry-road, Old Bailey, Covent (originally Convent) Garden, the Poultry, the Broad Sanctuary, Lombard-street (the street in which the Lombard money dealers established themselves), Trump-street (the street in which the trumpet-makers had their shops); and if a street had been appropriated by fiddle-stick makers in all probability that street would have been called Fiddlestick-street. I know not that any street was thus appropriated, but an important thoroughfare became a mart for the sale of piccadillas, a once fashionable turn-down collar, and that thoroughfare came to be known as Piccadilly.

The name needed for our new street is some term or terms indicating its *raison d'être*, some name proclaiming the thoroughfare to be a connecting link between the strand of the Thames and the street over the bourne running a little distance north of the river, a very much condensed Strand-and-Holborn-chief-junction-road.

Strandborn-highway, Strandborn High-street, or Strandborn High-road would fairly well respond to this need, though lacking the junction element.

If "link" would be permitted in place of "street" or "road," Strandborn High-link or Strandborn-linkway would accurately define the new thoroughfare.

"Link" is a term to be found in railroad phraseology. Why may not the same term be employed in street nomenclature?

The term "high" may, by some, be regarded as antiquated, but the word is not obsolete, being still frequently used with the signification of chief, principal. We still have a High Court of Justice, a Lord High Chancellor, high treason, high priest, high commissioner, high sheriff, high bailiff, high constable, the Queen's highway, highways and byways, highdays and holidays, high festivals, and the rest.

Should the London County Council build their new hall in the new street, "Council Hall-street" would be appropriate.

Of recent street nomenclature, "The Thames Embankment" and "Charing Cross-road" may be cited as names conformable with local environment, but what is to be said of "Shaftesbury-avenue" and "Rosebery-avenue?" Those two avenues recall the "Windsor Cottages" and "Sandringham Villas" *et hoc genus omne.*

If I built a house the material of which was red stone, I should call the place The Red Stone House, or if situated at the junction of two roads, and the house lacked any feature more distinctive than its situation, my notepaper would probably bear the inscription, "The Corner House."

FREDERICK DAVIS, F.S.A.

*** See our "Note" on page 434—ED.

ARCHITECTURAL DRAWINGS AT THE ROYAL ACADEMY.

SIR,—I sent a drawing to the Royal Academy this year, and marked it clearly with the "A" necessary to distinguish it as an architectural subject. A few days ago I received from the Secretary an "unable to accept" card, marked with a large "B" in blue, and as if to make doubly sure there was a "B and W" marked in pencil as well. I, therefore, assumed that the drawing had been judged as a black-and-white, and as it had no interest as such I wrote to Mr. Eaton suggesting that there had been an error, and that it would be possible to rescue my modest little frame from the black and white tribunal and place it before the architectural judge. A not too courteous answer was returned that it made no difference, and that the drawing was rejected—as a black-and-white. I then wrote to Mr. Aitchison, as architect on the Hanging Committee, who, with infinite kindness, made reply that "as seven times, at least, as many works of art are sent in as can be accepted, which must, of course, result in much disappointment, and as I judge that it (my drawing) was not accepted by the Council, the number of works precludes the possibility of revision."

I cannot feel that Mr. Aitchison justifies the Council. The number of works sent in can be limited if the Royal Academy chooses, and is in consequence of their own seeking.

Much money is spent each year by architects in the preparation of perspectives, and I feel that they should be judged as such, not as black and whites or oil paintings.

I have had drawings sent to the black-and-white room before—perhaps because of the overcrowding in the one poor little room set apart for architects, and a desire to find a habitation for such subjects which approximate in their treatment to the black and white method. C. H. B. QUENNELL.

*** How does our correspondent suggest that the Academy can limit the number of works sent in? They could only do so by confining the exhibition to the works of artists specially invited to exhibit; and neither artists nor the public would thank them for that. For the rest, we saw Mr. Quennell's drawing, and to classify it with "black-and-white" works, and then reject it as such, is ridiculous, and shows a want of attention or knowledge on the part of some one at the Academy. The drawing was obviously intended as an architectural design, not as a "picture"; and the works for the "black-and-white" room are judged as pictures.—ED.

"FIREPROOF CONSTRUCTION."

SIR,—In your leading article on "Fireproof Construction," of the 28th ult., you call special attention to the Admiralty buildings, state that the ceilings only are fireproof, and that they have "roofs in which the iron construction is not enclosed." You also severely comment on the matter.

The roofs of both blocks of these buildings, as well as the ceilings and floors, were constructed by ourselves on the system invented by Mr. Fawcett. The upper or nearly flat roof construction, as you will see by the enclosed photographs, is practically a repetition of the ceiling construction, the concrete being ordinary. It was finished with a thick floating of cement and sand, as preparation to the asphalt, and lead finish.

The sides or quick sloping parts and the dormers, also the cores to the domes and roof features, were constructed in the same way, except that the concrete was composed of fine sifted furnace ashes and cement ruled off to a true surface and slated. Each slate was bedded in mortar and nailed to the concrete. The large dome and roof feature were covered with copper.

With regard to the Record Office, we constructed the floors and ceilings, in both blocks, but not the roofs; these were formed with iron principals and purlins, to which were secured thick cast iron plates as the roof finish.

MARK FAWCETT & CO.

*** We evidently misunderstood a remark of Sir John Taylor's in the discussion on Mr. Blashill's paper at the Institute of Architects on December 18. He cited the New Admiralty and the Record Office as both having fireproof roofs, and then gave a brief description of the Record Office roof as of iron, not encased; and we concluded that his description applied to both roofs, as both were mentioned together.—ED.

WARMING AND VENTILATION.

SIR,—We notice in a lecture on "Warming and Ventilation," which is printed in your issue of April 21, in commenting upon the different systems of mechanical ventilation, the following words occur:—

"Pitman's School of Shorthand, to speak from the experience of the scholars, is anything but pleasant."

This statement is incorrect, and we do not consider that the writer should form an opinion on the system of ventilation adopted at our school from the words of a few out of the many thousands of scholars who attend during the year. When we were laying the plans of our Metropolitan School

we gave a good deal of attention to the warming and ventilation, and after looking into the question very thoroughly we decided to adopt the Sturtevant system, and since the installation was started (when our school was opened, two years ago) we have never had occasion to regret our decision, as the apparatus has proved very satisfactory, and has done all we expected it to do.

ISAAC PITMAN & SONS, LIMITED.

The Student's Column.

DETAILS OF STRUCTURAL IRON AND STEEL.

17.—THE STRENGTH OF COLUMNS (*continued*).

AN exhaustive inquiry as to the strength of columns has been made by Mr. J. M. Moncrieff, M.Inst.C.E., whose practical conclusions are fully stated in a paper recently communicated to the American Society of Civil Engineers. All the most important experimental records are dealt with, including those of Hodgkinson, Christie, Marshall, Bauschinger, Considère, Tetmajer, and others furnished by various official tests conducted in the United States. Mr. Moncrieff has subjected the data at his disposal to analytical examination, and all results, except those involving defects or special conditions, are plotted in a series of diagrams in such a manner that the relationship between the direct load and the ratio $\frac{l}{r}$ may be seen at a glance.

Upwards of thirty diagrams of this kind are given in the paper, containing the results of no fewer than 1,789 experiments indicative of the behaviour of cast iron, wrought iron, steel, and timber columns. Curves are drawn in each diagram, showing the strength of the ideal column, the upper and lower limits of strength of the practical column, and the safe working dead load of the latter. These curves have been calculated by a formula, now made public by Mr. Moncrieff, which exhibits features worthy of careful consideration. The theory forming the basis of the formula relies chiefly upon two assumptions:—(1) that a perfectly centred column, of perfect material and straightness, is an ideal conception seldom or never realised in practice, and (2) that the various disturbing influences preventing its realisation are practically all capable of being represented, as regards their ultimate effect, by an equivalent eccentricity of loading. Any theory founded on these principles should be expressed by a formula from which the strength of the ideal column may be calculated, if the factor representing eccentricity be reduced to zero. To the first proposition no one will be likely to object, and as regards the second, we may remark that the investigations of Christie, Marshall, Considère, and Bauschinger show that the physical and geometrical axes of a column do not often coincide, and that a column may possess greater strength when loaded in an apparently eccentric manner than when loaded in an apparently central manner. So far, then, the theory appears to be reasonable, and consistent with ascertained facts.

An important factor in the formula is ε, representing *equivalent eccentricity*. The value of ε cannot be determined beforehand, for it depends upon defects of material or of workmanship, and upon the effects of manipulation during manufacture. As employed by Mr. Moncrieff, ε finds a place in the expression $\frac{c\varepsilon}{r^2}$, denoting *accidental eccentricity*. The value of $\frac{c}{r}$ could easily be calculated, because c is the distance of the extreme fibres in a column section from the neutral axis—the distance, for instance, of a from A in fig. 154—and r is the radius of gyration of the section. In the present state of our knowledge it appears to be desirable that one constant value should be assigned to the quantity $\frac{c\varepsilon}{r^2}$, as determined by experimental evidence. Any column having the least eccentricity of loading, or the least degree of initial curvature, will immediately commence to bend under load, and the bending will increase more rapidly than the increase of load. Therefore we see that any expression for the strength of a column should not only be in harmony with the laws governing deflection, but ought also to include the corrective factor $\frac{c\varepsilon}{r^2}$, for accidental eccentricity. We already know that when flexure takes place both compressive and tensile stresses are induced, but it should be remembered that the maximum compressive stress in a column of symmetrical section has a greater value in pounds per square inch than the maximum tensile stress; consequently tension does not become the controlling factor unless a considerable difference exists between the compressive and tensile strength of the material. Mr. Moncrieff gives a variation of his formula for failure by tensile stress, but, for the reason stated above, this need not be used in ordinary cases. It is necessary, however, to take tension into account to a certain extent when determining the strength of a column with flat ends which are not fixed. As Mr. Moncrieff points out, a distinct line is to be drawn between the column with flat ends and the column with fixed ends. In the former type no tensile stress can be developed at the ends, and if tension were attempted to be set up at these points, the ends would begin to rotate on their bearing surfaces, and the column would be in a highly unstable condition. In a column with fixed ends the bending moment at each end is theoretically equal to that at the centre. So long as no tensile stress is established in a column with flat ends, it will behave exactly the same as a column with fixed ends, that is to say, up to the point of loading where stress in the column at its ends and centre is as shown in fig. 168, when a small increase of load will probably result in failure. The accuracy of this view is demonstrable by considering the case of a column whose ends are fixed; in which tensile stresses have been developed at the ends and centre. If the fibres in tension at the ends could be cut, whilst under load, so as to transform the column into a flat-ended column, we should naturally expect to find an immediate alteration of curvature, and it is highly probable that the column would fail with the same or a slightly augmented load. The substantial truth of these views with regard to flat-ended columns appears to be clearly evidenced in Mr. Christie's experiments, and Mr. Moncrieff provides for the effect of incipient tension by a rule derived from his formula for failure by tensile stress.

This modified rule is intended to determine the critical condition of incipient tension, and if flat-ended columns are proportioned in accordance therewith, no tension can be set up, and they will behave similarly to columns with fixed ends.

In their unabridged forms the two equations for estimating the strength of columns are thus written:—

(*a*) For failure by compression:—

$$\frac{l}{r} = \sqrt{\frac{48\,E}{5\,F_c + f_d\left(\frac{c\varepsilon}{r^2} - 5\right)\left[\frac{F_c}{f_d} - 1 - \frac{c\varepsilon}{r^2}\right]}}$$

(*b*) For incipient tension in flat-ended columns:—

$$\frac{l}{r} = \sqrt[2]{\frac{48E\left(1 - \frac{c\varepsilon}{r^2}\right)}{f_d\left(\frac{c\varepsilon}{r^2} + 5\right)}}$$

Formula (*a*) applies to columns with round, hinged, or pin ends without alteration; when used for columns with flat or fixed ends the value ascertained must be multiplied by two; but formula (*b*) must be applied to columns with flat ends when the ratio of $\frac{l}{r}$ is reached, at which incipient tension becomes the controlling factor.

The following are the significations of the symbols used in the formulas:—

$\frac{l}{r}$ = length ÷ least radius of gyration in inch units.

E = modulus of elasticity in pounds per square inch.

F_c = maximum compressive stress in pounds per square inch.

f_c = direct load in pounds per square inch.

$\frac{c\varepsilon}{r^2}$ = constant representing accidental eccentricity.

The precise use of equation (*a*) is as follows:—Let it be assumed that in a given section, a certain value of maximum compressive stress F_c is not to be exceeded; if the numerical equivalent of this be inserted, together with the values of f_d, E, and $\frac{c\varepsilon}{r^2}$, we have at once the proper ratio of $\frac{l}{r}$, corresponding to the direct load f_d per square inch. If the loading should be purposely eccentric, it becomes necessary to add the actual measured eccentricity e and the value $\frac{c}{r^2}$ as fixed by the section, in addition to the constant $\frac{c\varepsilon}{r^2}$ for accidental eccentricity.

For the purpose of showing the manner in which Mr. Moncrieff has presented his facts, we reproduce one of his diagrams, where full details of a large number of tests are plotted, and where curves are given showing how far the formulas are consistent with experimental results.

The formulas can be used, as they have been in connexion with this diagram, for ascertaining ultimate strength.

For actual practice they are intended to indicate the correct ratio of $\frac{l}{r}$ for any given direct load, at the same time fulfilling the conditions that the maximum fibre stress shall be within safe limits as regards the strength of the material and that the working load shall not be more than one-third of that under which instability would result by reason of insufficient stiffness of the material. The first condition is secured by assigning to F_c a sufficiently low value, and the second by the insertion of the factor of safety K.

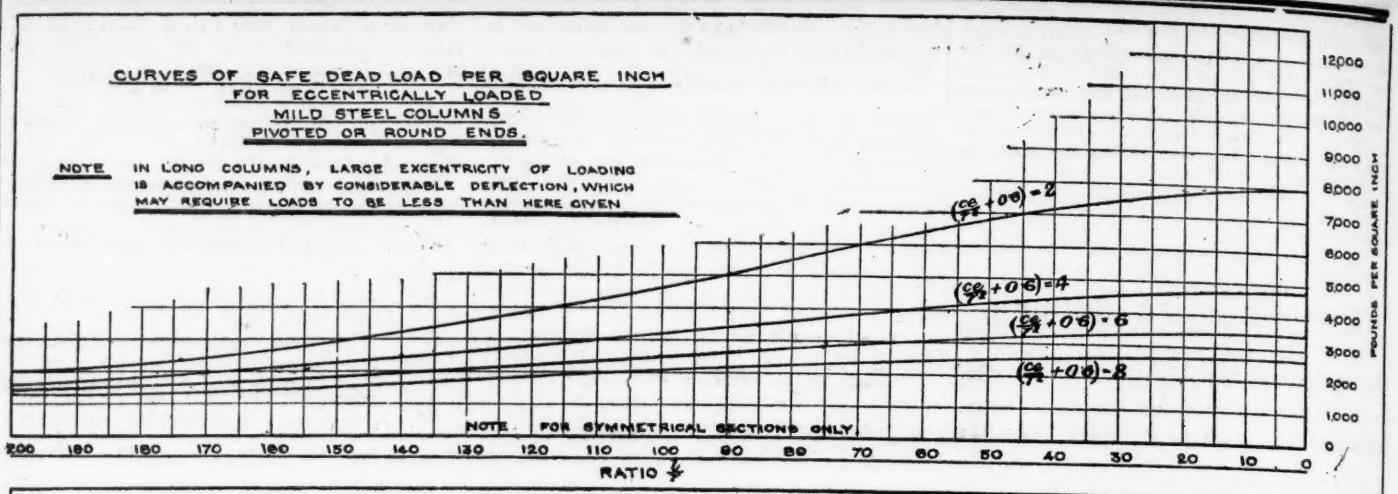
Table XLVII. contains the Moncrieff working formulas for columns, and the values of constants for cast iron, wrought iron, and steel.

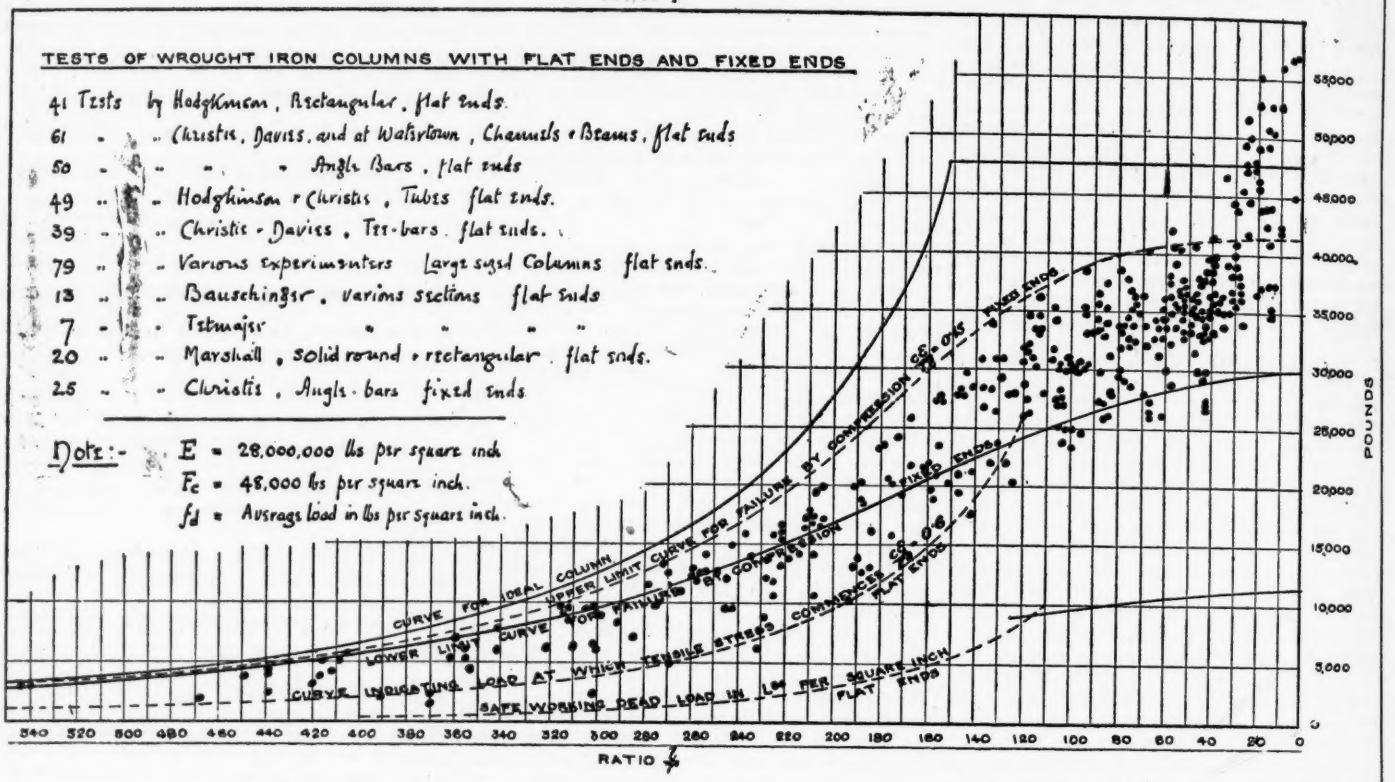
Two other diagrams are also reproduced from Mr. Moncrieff's paper, one giving the curves of safe dead loads for centrally loaded columns, and the other the curves of safe dead loads for eccentrically loaded columns. The following examples will serve to explain how the curves have been calculated for central loads.

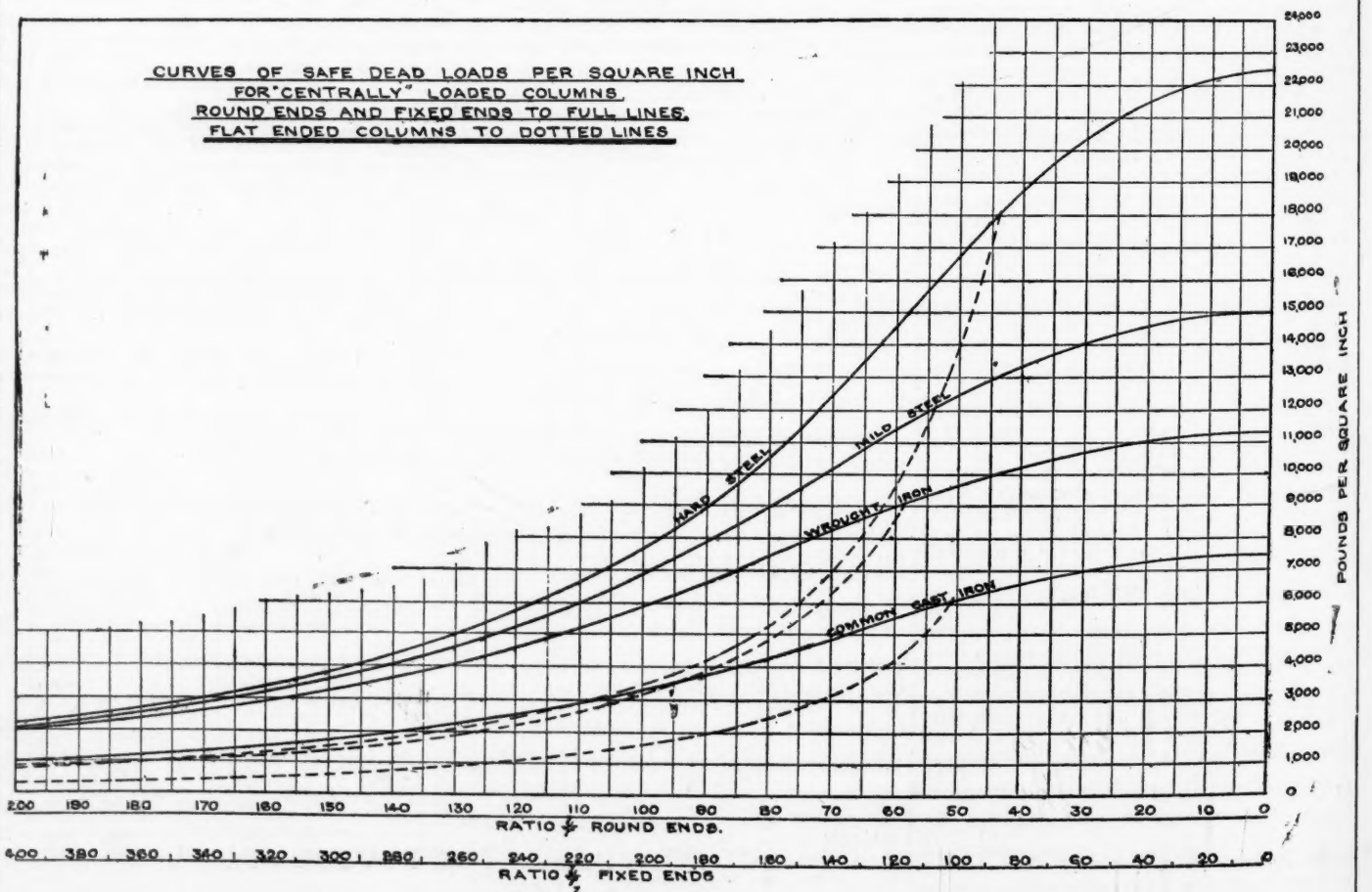
Ex. 1.—If the dead load per square inch be limited to 5,000 lbs. in a cast-iron column, find the correct ratios of $\frac{l}{r}$ for round and fixed ends respectively.

Table XLVII.—Moncrieff Working Formulas for Columns under "Central" Loads.
A unit of 10,000 lbs. is used for F_c, f_d, and E.

Material.	F_c; in lbs. per sq. in.	KE = Mod. Elas. ÷ 3; in lbs. per sq. in.	Value of $\frac{ce}{r^2}$	Formula (*a*) for round-ended columns. (Results to be doubled for fixed-ended columns.)	Formula (*b*) for incipient tension in flat-ended columns.
Cast iron.....	12,000 = 1·2 units.	$\frac{14,030,000}{3}$ = 466·6 units.	0.6	$\frac{l}{r} = 10\sqrt{\frac{224}{6 - 4{\cdot}4\frac{f_d}{}\left(\frac{1{\cdot}2}{f_d}\right) - 1{\cdot}6}}$	$\frac{l}{r} = 2{\cdot}138\sqrt{\frac{E}{f_d}}$
Wrought iron..	18,000 = 1·8 units.	$\frac{28,000,000}{3}$ = 933·3 units.	0·6	$\frac{l}{r} = 10\sqrt{\frac{445}{9 - 4{\cdot}4\frac{f_d}{}\left(\frac{1{\cdot}8}{f_d}\right) - 1{\cdot}6}}$	Do.
Mild steel	24,000 = 2·4 units.	$\frac{30,000,000}{3}$ = 1,000 units.	0.6	$\frac{l}{r} = 10\sqrt{\frac{480}{12 - 4{\cdot}4\frac{f_d}{}\left(\frac{2{\cdot}4}{f_d}\right) - 1{\cdot}6}}$	Do.
Hard steel	36,000 = 3·6 units.	$\frac{30,000,000}{3}$ = 1,000 units.	0·6	$\frac{l}{r} = 10\sqrt{\frac{480}{18 - 4{\cdot}4\frac{f_d}{}\left(\frac{3{\cdot}6}{f_d}\right) - 1{\cdot}6}}$	Do.


CURVES OF SAFE DEAD LOAD PER SQUARE INCH
FOR ECCENTRICALLY LOADED
MILD STEEL COLUMNS
PIVOTED OR ROUND ENDS.
NOTE IN LONG COLUMNS, LARGE EXCENTRICITY OF LOADING IS ACCOMPANIED BY CONSIDERABLE DEFLECTION, WHICH MAY REQUIRE LOADS TO BE LESS THAN HERE GIVEN
(cc/k² + 0·6) = 2
(cc/k² + 0·6) = 4
(cc/k² + 0·6) = 6
(cc/k² + 0·6) = 8
NOTE FOR SYMMETRICAL SECTIONS ONLY
POUNDS PER SQUARE INCH
RATIO l/k


TESTS OF WROUGHT IRON COLUMNS WITH FLAT ENDS AND FIXED ENDS
41 Tests by Hodgkinson, Rectangular, flat ends.
61 " " Christie, Davies, and at Watertown, Channels & Beams, flat ends
50 " " " " Angle Bars, flat ends
49 " " Hodgkinson & Christie, Tubes flat ends.
39 " " Christie & Davies, Test-bars flat ends.
79 " " Various experimenters Large sized Columns flat ends.
13 " " Bauschinger, various sections flat ends
7 " " Tetmajer " " " "
20 " " Marshall, solid round & rectangular flat ends.
25 " " Christie, Angle bars fixed ends
Note:- E = 28,000,000 lbs per square inch
Fc = 48,000 lbs per square inch.
fd = Average load in lbs per square inch.
CURVE FOR IDEAL COLUMN
UPPER LIMIT CURVE FOR FAILURE BY COMPRESSION cc/k² = 0·15 FIXED ENDS
LOWER LIMIT CURVE FOR FAILURE BY COMPRESSION cc/k² = 0·6 FIXED ENDS
CURVE INDICATING LOAD AT WHICH TENSILE STRESS COMMENCES cc/k² = 0·6 FLAT ENDS
SAFE WORKING DEAD LOAD IN LBS PER SQUARE INCH FLAT ENDS
POUNDS
RATIO l/k


CURVES OF SAFE DEAD LOADS PER SQUARE INCH
FOR "CENTRALLY" LOADED COLUMNS.
ROUND ENDS AND FIXED ENDS TO FULL LINES.
FLAT ENDED COLUMNS TO DOTTED LINES
HARD STEEL
MILD STEEL
WROUGHT IRON
COMMON CAST IRON
POUNDS PER SQUARE INCH
RATIO l/k ROUND ENDS.
RATIO l/k FIXED ENDS
RATIO l/k FLAT ENDS.

Illustrations to Student's Column.

(1) For round ends by formula (*a*) :—

$$\frac{l}{r} = 10\sqrt{\frac{224}{6-4\cdot4\,(\cdot5)}}\left(\frac{1\cdot2}{\cdot5}-1\cdot6\right) = 68\cdot6$$

(2.) For fixed ends the ratio is

$$68\cdot6\times2 = 137\cdot2.$$

Ex. II.—With the same limit of load as in Ex. I, find the correct ratio of $\frac{l}{r}$ for flat ends. By formula (*b*) :—

$$\frac{l}{r} = 2\cdot138\sqrt{\frac{1,400}{\cdot5}} = 2\cdot138\sqrt{2,800} = 113\cdot1$$

It may not seem to be clear when formula (*a*) and when formula (*b*) should be applied to columns with flat ends, because the point at which the curves would intersect is not necessarily known. As, however, the lower ratio is always that which must be accepted, we have an easy clue to the selection of the proper rule.

These equations may be used for the purpose of obtaining a series of curves for general guidance, or they can be applied to individual cases. The only modification necessary in dealing with live loads instead of the dead loads, for which the stresses stated in Table XLVII. are suitable, obviously consists of a reduction in the values of F_c, and an increase in the value of K. Mr. Moncrieff suggests as an alternative that the moving load should be increased by a percentage dependent upon the character of the load, and that the result should then be treated as a dead lead.

Perhaps the following example will serve to illustrate the practical application and convenience of the formula, or of the curves obtained therefrom.

A wrought-iron column, 15 ft. long, with flat or with fixed ends, has to carry 30 tons dead load = 67,200 lbs., and the maximum weight is not to exceed 10,000 lbs. per square inch of section. We find either by direct calculation or from the diagram of safe dead loads that the ratio $\frac{l}{r} = 90$; therefore $r = \frac{180}{90} = 2$.

As the sectional area should be $\frac{67,200}{10,000} = 6\cdot7$ square inches, any column may be selected whose radius of gyration is not less than 2 inches, and whose sectional area is not less than 6·7 square inches.

Before leaving this part of our subject, it is will be well to direct attention to the fact that a serious misconception frequently exists with regard to the requirements necessary for realising the conditions of fixity in the ends of a column. Colums are often put up and fixed in a fashion which makes them nothing more than flat-ended columns so far as their behaviour and strength are concerned. To make this matter perfectly plain, let us take two examples. In the first, let it be assumed that a row of columns, of which two are drawn in fig. 169, are properly fixed to rigid foundations, and the upper ends of the columns are secured to a strong and rigid girder. Of course, the imposition of a load on any span of the girder will cause deflection, but the deviation will be small, and the stiffness of the girder, as compared with that of the columns, will be relatively so high that fixity will be practically, though not theoretically, attained. In the second example, let us assume the columns to be spaced some distance apart, and that their upper ends are fixed to a girder which is only moderately rigid. Then the girder when loaded will deflect considerably, as shown to an exaggerated uegree by dotted lines in fig. 170, and the columns will experience severe bending stresses in addition to their direct loads. Thus, it should be clear that an injudicious attempt to fix the ends of a column may result in serious and unexpected diminution of strength.

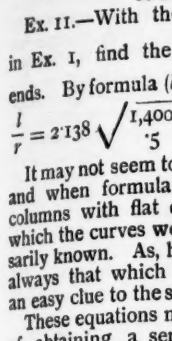


fig 168.

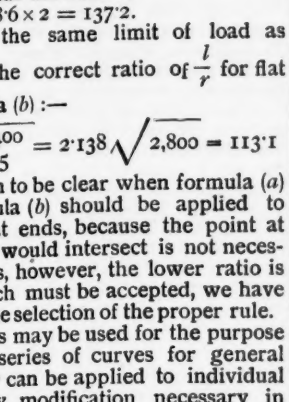


fig 169.

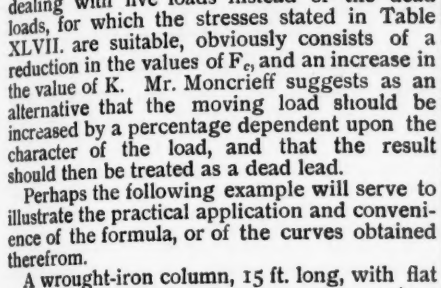


fig 170

If there be any uncertainty as to the fixity of the ends, strength should be calculated as for a flat-ended column, with due allowance for bending stresses as mentioned above, if any such may reasonably be anticipated.

GENERAL BUILDING NEWS.

PADDINGTON CONGREGATIONAL CHAPEL. — This chapel, situate in the Marylebone-road, having undergone extensive improvements and additions, has just been re-opened for public worship. The original building was erected in 1813. The front, which is entirely new, is principally of stonework and in the Italian style, and the pediment and other principal features are decorated with carving. On each side are towers terminated with octagonal roofs ; these contain new staircases. There is a church parlour on the first floor, and new vestry, classrooms, with other conveniences, on the two lower floors. The lecture-hall, which is below the chapel, has been considerably improved and increased in height. Additional daylight has been obtained, and the walls have been underpinned. The alterations in the chapel afford increased accommodation, the space formerly used for vestibule and staircases being now utilised for seats. Additional height has been obtained by removing the ceiling, and dormer windows have been constructed. The windows throughout are new, and these are glazed with ornamental leaded glazing. The gallery front is also new. The organ case and pulpit, which are new, are made in carved oak. The organ (by Mr. Gern, of Notting Hill) is a fine instrument, with three manuals, blown by means of a hydraulic engine. Electric lighting has been adopted throughout the building, and four fans, driven by electricity, ventilate the lecture hall. The entire outlay has not been much less than 10,000*l*., including the new organ. Mr. Alfred Conder, Westminster, was the architect ; the builders were Messrs. Kingerlee & Sons, of Oxford ; Messrs. Palmer & Watson, of Charing Cross-road, carried out the installation of the electric light ; and the carved oak pulpit was executed by Messrs. Martyn & Co., of Cheltenham.

ST. FAITH'S CHURCH, GREAT CROSBY, LIVERPOOL. — On the 21st ult., the Archbishop of York (Dr. Maclagan) consecrated the Church of St. Faith, which has been erected in Crosby-road North, opposite College-road, Crosby, by Mr. Douglas Horsfall, of Mere-bank, Sefton-park. St. Faith's Church occupies a corner site upon the high road from Crosby to Waterloo. The church provides accommodation for about 800 worshippers, and is Early Perpendicular in style, with large traceried windows. The external and internal walls are of red Accrington bricks, and the windows, dressings, and other features of red Runcorn sandstone. The nave is 40 ft. wide, and is covered by a hammer-beam roof. The doors are of oak, and the choir stalls and chancel fittings are of mahogany, stained green. The reredos has five figure panels in glass mosaic, designed by Mr. H. B. Bryans, of London, and executed by Salviati, of Venice. Two screens separate the chancel from its aisles. The church, which will be lighted by gas and heated by means of hot-water pipes, has been built from the plans of Messrs. Grayson & Ould, Messrs. Roberts & Robinson being the contractors. The cost is estimated at 16,000*l*.

MISSION CHURCH, CANKLOW, ROTHERHAM.—A new mission church at Canklow, Rotherham, was dedicated on the 23rd ult. Mr. E. Isle Hubbard, of Rotherham, was the architect, and Mr. H. Trehern, of Parkgate, was the general contractor.

CONGREGATIONAL CHURCH, OLTON, WARWICK. —The memorial-stone of a new Congregational church in Kineton-road, Olton, was laid on the 24th ult. The architect is Mr. John P. Osborne, of Birmingham.

WESLEYAN CHAPEL, MARTON-LE-MOOR, YORKS. —A new Wesleyan chapel at Marton-le-Moor was opened on the 16th ult. The building is of red pressed bricks and white Rainton stone in the front elevation, the rest of the building being of white brick. There is a schoolroom, divided from the chapel by a movable partition. The contractors were Messrs. Joseph Kay, Boroughbridge, masonry ; Mr. John Waddington, Boroughbridge, joinery ; Mr. Chas. F. Dean, Boroughbridge, plumbing ; Mr. M. Bartholomew, Knaresbro', plastering ; Mr. John Baynes, Ripon, slating ; and Mr. H. Reed, Boroughbridge, painting. Mr. J. A. Prior, of Wakefield, was the architect.

BAPTIST CHAPEL, HORNSEY.—A new Baptist chapel was opened at Ferme Park, Hornsey, on the 26th ult. The architect was Mr. Geo. Baines, of London.

PRESBYTERIAN CHURCH, WHITLEY, NORTHUMBERLAND.—The foundation stone was laid at Whitley on the 25th ult. of the new church on the Esplanade. The church hall was erected over three years ago. The hall and site cost 2,500*l*., and it is estimated that the new church will involve an expenditure of 5,000*l*. The new church when fully completed will measure 90 ft. by 42 ft., and will provide accommodation for about 450 worshippers. Included in the building will be a minister's vestry 16 ft. by 9 ft., a small hall 29 ft. by 16 ft., with accommodation for sixty-eight people, and the central corridor will be 4 ft. 6 in. in width. The building will be of Gothic structure, with a chancel behind the pulpit. The walls are to be faced with red Ruabon bricks with black joints and Denwick stone dressings. The roof will be covered with pea-green slates in diminishing courses. The ventilation is on the Honeyman invisible system, and the heating will be carried out with hot water on the low-pressure system. Cathedral glass will be placed in the windows. The contractors are Messrs. Fishburn & Co., of North Shields ; Mr. W. Bowden, of Whitley, is clerk of works ; and the plans have been prepared by Mr. Henry Gibson, of North Shields.

PRESBYTERIAN CHURCH HALL, FINCHLEY.—A Presbyterian church hall, which has been built on a portion of a site at the corner of Finchley-road and Frognal-lane, was opened on the 29th ult. It is proposed to build a permanent church on the other portion of the site. The architect is Mr. William Wallace, and Messrs. Holloway Bros. are the builders.

EXTENSION OF ST. MARK'S CHURCH, PEMBERTON, LANCASHIRE.—The foundation stone has just been laid of additions to St. Mark's, Newtown. The main fabric has been in existence for some years, and the additions consist of a chancel, 33 ft. long, with a width of 24 ft. On the north side will be provided two vestries, one each for clergy and choir. The organ chamber will be situated on the south of the chancel, with a circular staircase on the angle. The organ chamber will be carried to the height of the chancel eaves. In the chancel stalls will be provided for the choir, and two prayer desks—one on the north and one on the south side—will be introduced, the stalls and desks to be executed in Dantzic oak. The buildings of the additions will be similar in character to the present nave—parpoint walling, with Red Runcorn dressings. The work is to be carried out in accordance with designs prepared by Messrs. Heaton, Ralph, & Heaton, of Wigan, at an estimated cost of 2,600*l*. Mr. Wm. France, of Pemberton, has undertaken the building, and the stone work has been let to Mr. W. Winnard.

HOSPITAL, STANDON, STAFFORDSHIRE.—A hospital erected at the Standon Farm Home for boys was opened on the 25th ult. The building is of brick, and was designed by Mr. G. A. Craig, of Market Drayton.

HOSPITAL, ABERLOUR, BANFF.—The Fleming Hospital at Aberlour was opened on the 30th ult. The building is situated on the Allachy ground at the top of Queen's-road. The architects were Messrs. Dunn & Findlay, of Edinburgh, and the following were the contractors :—Masonry, Mr. D. Forsyth, Elgin ; carpentry, Messrs. A. & R. Dunbar, Craigellachie ; plumbing, Mr. J. Hunter Clark, Elgin ; slating, Mr. Wilson, Dufftown ; plastering, Messrs. A. & J. Munro, Aberlour ; painting, Messrs. J. Kintrea & Son, Elgin.

BOARD SCHOOLS, MANSFIELD, NOTTS.—The block of schools which have been erected by the Mansfield School Board in Rosemary-lane, Mansfield, were opened on the 25th ult. by Lord Belper. The schools are arranged in two separate blocks, the larger (a two-storied building) accommodating 500 children (250 on each floor), and the smaller (a two-storied building) finding room for 500 infants, the total accommodation being for 800, with an additional 120 in the central halls of the boys' and girls' departments. The school is also provided with a small cookery department in the south-west corner, covered playgrounds, and garden. The various class-rooms are arranged around the central hall, and, in addition to the ordinary exits, there are also provided doors for use in emergency. These open outwards and are fitted with patent panic locks. The rooms are floored with wood blocks with a foundation of concrete, and the class-rooms in each block are separated from the central hall by movable glass partitions. The architect is Mr. R. F. Vallance, of the firm of Vallance & Westwick, and the contractors Messrs. Gilbert & Gabbitas, of Nottingham, the amount of whose contract was 10,604*l*.

CHURCH SCHOOLS, KIDDERMINSTER. — New infants' schools in Leswell-street, Kidderminster, were opened on the 25th ult. Messrs. Meredith & Pritchard were the honorary architects.

PUBLIC BATHS, ROTHERHAM.— Mr. W. O E. Meade King held a Local Government Board inquiry in the Council Chamber, Rotherham, on the 24th ult., into an application by the Town Council for sanction to borrow 2,000*l*. for public baths purposes. It was explained that part of the money was needed to carry out certain work at the Public Baths, which had become necessary owing to sub-

sidences which had taken place; the Free Library, which occupied the first floor of the building, having been endangered. It was proposed to construct Turkish baths and nine first-class slipper baths on the site of one of the swimming baths which had become useless owing to the subsidences. Details of the work were given by Mr. J. Platts, of Rotherham, the architect.

MATER INFIRMORUM HOSPITAL, BELFAST.—The formal opening of the new Mater Infirmorum Hospital, Belfast, took place on the 23rd ult. The architect of the new building was Mr. W. J. Fennell, whose plans were selected in competition, Mr. Thomas Drew, R.H.A., President of the Royal Institute of the Architects of Ireland, acting as assessor. The contractors were Messrs. Henry Laverty & Sons. The site has a frontage on the south of 230 ft. to the Crumlin-road, and altogether contains an area of slightly over one acre. It is composed of red boulder clay, with a gentle incline from north to south. The hospital is designed on the pavilion system, and the principal portions of it may be said to consist of three distinct blocks facing the Crumlin-road, the centre one being the administration building, flanked by a pavilion block on each side—that on the east side being for males and the west one for females. These pavilions present their gable ends to the Crumlin-road, and extend backwards and parallel to the east and west boundaries about 146 ft., and are connected on the ground floor to the administration block by a wide corridor running east and west the entire length of the frontage. Each pavilion is three stories in height, and contains two large wards on each floor, each of these wards being provided with two sanitary chambers in towers, which branch off diagonally at the ends, and are separated from them by disconnecting corridors. The spaces formed outside the gable ends by the projections of these towers are utilised for verandahs for the use of convalescents Each of the large wards is also provided with a ward kitchen, a store, and a small private ward containing only one bed. Between these extreme pavilions and the administration block is placed a smaller pavilion, which contains smaller wards and day-rooms for the convalescents, and also the children's wards. Each pavilion has its own staircase, and in its "well" is placed the hoist, large enough for the removal of patients too ill to sit or stand. Staircases are also provided. The hospital is planned for 150 beds besides the cots for children. Most of the ground floor is well elevated over the soil, and supported by arches. The extern department is placed in the west pavilion, and the patients enter by a special side entrance into a large waiting-room, lined with white enamel tiles. From this the patients ascend to the first floor of the pavilion, where the doctors are to be found, each provided with a consulting-room opening off another waiting-room; and off each consulting-room is a dressing-room for special cases. No provision is made for nurses' bedrooms near the wards. Once a nurse goes off duty she will proceed to the Home, where the nurses' beds and day-rooms are, isolated from the scenes of hospital labours. The administration block contains on its ground floor the reception-rooms, offices, and rooms of the resident medical officers. The first floor contains a number of rooms especially provided for patients who can afford to pay for special wards. The top floor of this block is reserved for the use of the nuns who labour in the hospital, and is rendered secluded by a gate across the staircase bearing the inscription, "Convent portion." Behind the centre of the administration block, and separated from it by the main corridor, is the chapel for the use of the inmates and the patients. Galleries run round the end and each side, and open into the chapel by means of arches. The chapel terminates with an octagon, in which is the sanctuary, lighted by three stained-glass windows, showing subjects suitable to hospital work, and under each is a marble slab bearing the donor's name. Under these windows rises the high altar, constructed of white Carrara marble. On raised steps at each side of the sanctuary are two rows of stalls for the use of the Sisters of Mercy. These stalls are worked in Riga oak. The rest of the chapel, both on the ground floor and the galleries, contains seats for the use of the inmates, and a sacristy is provided at the end of the apse, with a separate entrance for the officiating clergyman. The chapel is flanked on either side by a corridor, branching at right angles from the main corridor, off which are placed one-story buildings, containing the observation wards and recovery wards for patients' immediate use after operations. The east one of these corridors also leads to the sacristy and the operating rooms, while the west one leads to the students' room and the lecture theatre, and terminates in the disconnecting corridor between this portion and the kitchen range of buildings. The yard divides the kitchen buildings from the laundry range, which occupies the extreme north-west corner of the site, and contains the receiving-rooms, wash-rooms, drying-rooms, disinfecting chambers, stores, ironing-rooms, and boiler and engine houses; while on the west side of the yard is placed the mortuary and post-mortem room. This range is connected with the kitchen wing by a bridge on the third or top floor. The buildings are of red brickwork and stone dressings, and will be heated by hot water and lighted by electricity. The front range of buildings are recessed 28 ft. from the Crumlin-road. The principal entrance to the hospital is in the centre of the administration block, which is somewhat more ornamental than the adjoining buildings, and is surmounted by a statue of the Mater Infirmorum. The floors of the wards and corridors are of concrete covered with terrazzo. The hospital has N.A.P. windows. The roofs are covered with patent vulcanite flat roofing. These roofs are laid out as gardens, with grass plots, flower beds, &c. Electric light is supplied to the whole building, gas being used only for cooking and laundry purposes.

NURSING HOME, DUBLIN.—The foundation stone of the new nursing home attached to the City of Dublin Hospital was laid on the 9th inst. The home was designed by Mr. Albert Murray, architect, of Dublin.

WESLEYAN CHAPEL, DARLINGTON.—A Wesleyan chapel is in course of erection in East-road, Darlington. The building, which is being erected on the site of a former chapel, and measures 78 ft. by 41 ft., will seat over 800 persons, and will cost about 3,000*l.* The main elevation will be of red pressed brick, with stone dressings. Galleries will be provided for the choir and organ, and the seating will be of pitch-pine. Messrs. Johnson & Boyd are the contractors for the brick work and masonry; Mr. R. T. Snaith for the joinery work; Mr. T. Lishman, plumbing; and Mr. J. Law, painting. The architect is Mr. J. W. Thompson, of Newcastle.

THE WINTER GARDEN AT DUTHIE PARK, ABERDEEN.—The winter garden at Duthie Park is now nearly completed. In design the structure is in the form of a cross, with entrances from each side, and with a large dome in the centre. The building measures about 100 ft. either way, and the height from the floor to the top of the dome is about 60 ft. The estimated cost of the building alone is about 2,000*l.* Mr. Rust, the City Architect, prepared the design; the mason work is by Mr. Farquharson, and all the other work by Messrs. D. Macandrew & Co.

NEW POLICE STATIONS, ABERDEENSHIRE.—Architects have been appointed as follows for the proposed new police stations, viz.:—Port Erroll, Mr. Davidson, Ellon; Maud, Mr. J. M. Pirie, Aberdeen; Kintore, Mr. A. H. L. Mackinnon, Aberdeen; Echt, Messrs. Brown & Watt, Aberdeen.

INVERNESS MARKET CROSS. — The "Mercat Cross" of the Highland capital is to be restored at the cost of Sir R. Finlay, Solicitor-General for England and M.P. for Inverness, and plans for the erection of the cross in front of the town hall have now been approved by the Dean of Guild Court. Mr. Gall, Inverness, is architect.

SEAMEN'S INSTITUTE, YARMOUTH.—The Duke of York has just opened the new Seamen's Institute on the South Quay, Great Yarmouth. The building occupies a site of about 28 ft. frontage to the quay, with a depth of about 90 ft. On the ground floor is the Seamen's Institute, 68 ft. by 28 ft., and 12 ft. 6 in. high, with a store-room at back about 15 ft. by 12 ft. The Mission Church is on the first floor, 68 ft. by 28 ft., and 22 ft. in height to the apex of the roof, with vestry adjoining, the same size as the store-room below. The main entrance to the Institute is from the quay, with outer and inner swing doors. The church has a staircase of pitch-pine, leading from an entrance lobby in Row 143. There is also a ladder staircase from the vestry, leading to the open space in the rear. The external woodwork of the west front, facing the quay, is of teak of an ornamental character. The ground floor has a projecting central porch, with canopy over, and moulded windows on each side. The church has a seven-light window at the east and west ends. The chancel floor at the east end of the church is raised. The roof of the church is open-timbered. The windows are filled in with tinted cathedral leaded glazing. The architects were Messrs. Bottle & Olley, and the general builder Mr. William Cork.

FIRE BRIGADE STATIONS, DUBLIN.—The fire brigade station in Lower Buckingham-street, Dublin, is almost completed; it is being erected from designs by Mr. C. J. M'Carthy, the City Architect. Three more stations are to be erected—viz., a central station in Great Brunswick-street, and stations in Upper Dorset-street and Thomas-street.

NEW STANDS, CHESTER RACECOURSE.— Three new stands, providing covered accommodation for 2,500 persons, have been erected at Chester Racecourse. The county subscribers' stand contains, on the ground floor, the main entrance, luncheon room for stewards and directors, officials' rooms, cloak rooms, and a kitchen. On the first floor are stewards' and ladies' tea and retiring rooms, refreshment bar and saloon 83 ft. by 20 ft., and a covered stand 97 ft. by 20 ft. 4 in., with accommodation for the stewards and Press. From the covered portion of this stand there is a double terrace of open steps leading down to the lawn. Tattersall's stand is 92 ft. in length and 38 ft. in width, and accommodates 1,500 persons. The grand stand is 66 ft. by 38 ft. A new ambulance room and police offices have been provided. The buildings are in the half-timbered style, and were erected by Messrs. Parker Brothers, of Chester. Messrs. Mangnall & Littlewoods, of Manchester, were the architects.

PRIMITIVE METHODIST CHAPEL, BRESSINGHAM, NORFOLK.—Memorial stones were laid recently of a Primitive Methodist Chapel at Bressingham, near Diss. Mr. Harvey Winkworth, of Ipswich, is the architect, and Mr. J. K. Fisher, of Bressingham, is the builder.

THEATRE ROYAL, NEWCASTLE.—It is proposed to rebuild the Theatre Royal, Newcastle, and Mr. Frank Matcham has been appointed to prepare plans.

ALMSHOUSES, REIGATE.—The foundation-stone was laid recently of the Victoria Almshouses in Deering-road, Reigate. Messrs. Chas. Nightingale & Sons are the contractors, and Mr. W. H. Prescott, the Borough Surveyor, is the hon. architect.

ALBANY HOUSE, TAVISTOCK-PLACE.—This house and the chapel of St. Andrew's, which adjoins it, are being pulled down. It is proposed to erect on the site a block of buildings, which will include a dancing school, residential flats, and a number of shops. The architect is Mr. Foster, and Messrs. Patman & Fotheringham are the builders.

PUBLIC BATHS, FULHAM.—Plans have been prepared by Mr. H. Dighton Pearson for the proposed public baths in Melmoth-place, Fulham. The buildings will contain swimming baths, private baths, and wash-houses.

DOULTON INSTITUTE, LAMBETH.—In our brief account of this building in our issue for April 21 we stated that the glass was supplied by Messrs. "Janes & Co."; it should have been W. James & Co., Kentish Town.

SANITARY AND ENGINEERING NEWS

NEW BRIDGE AT BUCKIE (BANFFSHIRE).—The Buckie Police Commissioners have adopted the design lodged by Messrs. Stewart & Son, Peterhead, for a three-arch stone bridge between Buckie and Buckpool, in line with Church-street, and accepted their offer to build the same for 1,795*l.* The Commissioners will construct the embankments, bringing the total cost up to 2,485*l.*

HARBOUR IMPROVEMENTS, PORTKNOCKIE (BANFFSHIRE).—The offer of Messrs. Sellar & Co., Aberdeen, to carry out the breakwater and other improvements has been accepted. The engineers are Messrs. D. & C. Stevenson, Edinburgh.

WATER SUPPLY, BEWDLEY, WORCESTERSHIRE. Mr. Willcocks, C.E., an Inspector to the Local Government Board, held an inquiry at Bewdley on the 27th ult., relative to the application of the Town Clerk to borrow 12,000*l.* for the purpose of carrying out a water-supply scheme for the borough. It was stated that a supply of water had been found at Blackstone, on the Wribbenhall side of the Severn; provisional contracts had been entered into, and it was estimated that the scheme would cost 12,000*l.* Mr. R. E. W. Berrington, Engineer to the Corporation, gave an outline of the scheme.

FOREIGN.

FRANCE.—The Chantilly Museum, from April 19, is open free on every Thursday and Sunday till October, ——The new Palais des Beaux-Arts at Nantes has just been opened. M. Gosse is the architect. The building, which stands on a site between the cathedral and the Jardin des Plantes, has cost about four million francs. It is to contain the municipal library and museum.——The Government have voted a sum for restoring the façades of the old château of Nantes, a historic building of great interest.——M. Jaunard, architect, of Langres, has been appointed on the staff of the Monuments Historiques department, in place of the late M. Godard.——The death is announced of M. Auguste Nicaise, an archæologist and writer of distinction, and a correspondent of the Department of Instruction Publique. He possessed, at his residence at Chalons-sur-Marne, an important artistic collection.

INDIA.—More than 20 per cent. of municipal expenditure in the Central Provinces at the present time is being devoted to water-supply purposes.—— As a result of the disastrous landslips at Darjeeling last year, an Act has been passed with a view to the more efficient regulation of building, drainage, and road works. The control of the works to be executed is vested chiefly in the municipal engineer and the special engineer appointed. The circumstance that the Act forbids the erection of rooms that have not at least one outer or verandah wall, though generally feasible in small houses, is much resented by Indian architects when applied to large houses; for by the Act the architect will no longer be able to introduce a central staircase hall, with top light and ventilation from a glazed lantern in the roof. ——New barracks are to be erected at Manora, Karachi.

POST-OFFICE, WESTON-SUPER-MARE.—New post-office buildings have been erected in the High-street, Weston-super-Mare. The building adjoins the Royal Arcades, and contains a large public office, a sorting-room, and rooms for the chief clerk, clerks, postmen, and messenger boys on the ground floor. Telegraphing and telephoning rooms, with a room for lady clerks, are on the first floor; and on the top floor are quarters for the caretaker. The cost of the site and building has been about 12,000*l.*, and the work has been carried out by Messrs. H. A. Forse & Sons, of Bristol, the architect being Mr. W. R. Oldrieve, from her Majesty's Office of Works, London. The post-office is built of bricks, with Bath stone facings.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS.—Mr. Ohlson, who has purchased the business of the Andrews-Hawkesley Patent Tread Company, has taken new premises for the business at Columbia Works, New-road, Poplar, E., to which all communications should be addressed.

MEMORIAL TABLET, NORWICH CATHEDRAL.—The brass tablet erected in the ante-choir of Norwich Cathedral to the memory of the late Dr. Zachariah Buck was unveiled on the 17th ult. The brass was designed by Mr. W. R. Weyer, of Norwich, and was engraved by Mr. H. East, of the same city.

STREET IMPROVEMENTS, BARRY, GLAMORGAN.—On the 24th ult., at the Gas and Water Offices, Barry Dock, Colonel H. F. Turner, C.B., R.E., conducted a Local Government Board inquiry into an application by the Barry Urban District Council for power to borrow, under the Public Health Act, 1875, 3,170*l.* for the construction of a further portion of Gladstone-road, from Court-road to Weston-square, Cadoxton; and under the Private Street Works Act of 1892, 1,531*l.* for making up streets, and 43*l.* for construction of a new street between Holton-road and Merthyr-street, Barry Dock. Mr. J. C. Pardoe, Surveyor to the Council, gave evidence in support of the application.

ABERDEEN ARCHITECTURAL SKETCHING CLUB.—A meeting of this club was held in the Trades Hall Buildings recently. Mr. Levie presided. The business for the evening was to hear Mr. Kelly's report and award in the recent competition. Two prizes were offered for the best designs for a "Small Country Villa," costing 1,500*l.* After a lengthy report on the eleven sets of drawings submitted, Mr. Kelly placed "Esmond" first, "The Major" second, and "Toujours Pret" third. On the envelopes being opened it was found that the author of the design "Esmond" was Mr. George Forsyth, 50, Fountainhall-road; of "The Major," Mr. Alex. Meldrum, Bonnymuir-place; and of "Toujours Pret," Mr. Fenton Bisset, Banchory.

HUXLEY MEMORIAL STATUE, SOUTH KENSINGTON MUSEUM.—A statue of Professor Huxley has been placed in the Natural History Museum at South Kensington. It is of white Carrara marble, and was executed by Mr. Onslow Ford, R.A. The pedestal is of Verona marble.

MANCHESTER GAS UNDERTAKING. — Mr. E. A. Sandford Fawcett, a Local Government Board inspector, held an inquiry at the Manchester Town Hall, on the 24th ult., relative to the application by the Manchester Corporation to the Local Government Board for sanction to borrow 250,000*l.* for purposes of their gas undertaking. Mr. Joseph Swarbrick, architect, described the works to be undertaken, and evidence was given by Mr. T. de Courcy Meade, City Surveyor.

BRITISH INSTITUTE OF CERTIFIED CARPENTERS.—The seventh visit of the session took place on Saturday, April 28, when the members, by permission, visited Messrs. Farmer & Brindley's works in Westminster Bridge-road. The party were met by Mr. Baines, manager, and Mr. Ernest Brindley, who conducted the members over the works, pointing out the numerous models, casts, and works in progress; among other things the carving in hand for the Marquis of Bute's mansion, Drapers' Hall, Roman Catholic cathedral, and other important buildings. A special attraction for the members was the system of machinery for the turning of stone columns, one for the Catholic cathedral being upon the lathe.

THE BRITISH FIRE PREVENTION COMMITTEE.—The tests of the British Fire Prevention Committee this week were solely in connexion with "non-flammable" wood, the object being primarily to show whether the treated wood would spread or sustain flame, the duration of the investigation being forty-five minutes. The Report of the Committee will be shortly issued, and should be of particular interest, as the trials were made on a comparative basis, and with so-called matchboarded partitions. The attendance of members and visitors was very large, including many of the Government and municipal officials, as well as the representatives of the great insurance companies.

CAPITAL AND LABOUR.

ABERDEEN JOINERS' STRIKE.—This strike, after lasting eight weeks, came to an end on the 26th ult., when the operatives refused to accept 8¼d. per hour, but resumed work on the condition that they should receive such wages as should be fixed by arbitration. The employers named Mr. R. G. Wilson, architect, Aberdeen, as arbiter on their behalf, and the men appointed Mr. George Bisset, City Treasurer, Aberdeen, to act for them. The only other point in dispute—the alteration of Rule 7 of the by-laws, referring to the date of giving notice of proposed alterations—had previously been mutually agreed to. What the arbiters had to decide was thus simply whether the standard rate of wages should remain at 8½d. per hour or be reduced to 8¼d. or 8d. The arbiters failed to agree, and ex-Lord Provost Mearns, who was called in as oversman, forthwith fixed the wages at 8d. per hour, being a farthing under what the master joiners had offered.

JOINERS' LOCK-OUT AT DONCASTER.—On the 30th ult., a meeting of master builders of Doncaster was held to consider the dispute between Messrs. Arnold & Son, and their joiners. The joiners employed by Messrs. Arnold at the Great Northern Works on the Crimpsall gave in their notices because the firm would not discharge a non-society man, and the firm at once locked-out their other joiners. The meeting decided to ask the men to send a deputation to an adjourned meeting of the master builders.

DUNFERMLINE PAINTERS' STRIKE.—On the 27th ult. a conference of representatives of the master and operative painters was held for the purpose of trying to arrive at a settlement of the present dispute, in connexion with which work has been suspended for a month. Mr. Cunningham occupied the chair. The men demanded a halpenny per hour advance in wages, and that agreements as to wages and work should continue until April 1; and the masters offered a halfpenny advance, and asked that new agreements should begin at February 1, so as to give them an opportunity of contracting for the season's work. After an hour and a half's discussion, a settlement was arrived at as follows:—(1) That wages be raised from 8d. to 8½d. per hour; (2) That notice of any proposal to alter wages or rules be given by December 31; (3) That a conference be held on or before February 1 to consider the proposals made on December 31; and (4) That the settlement arrived at on February 1 come into force on April 1.

BUILDING TRADE, STAFFORDSHIRE.—Considerable anxiety is now being experienced in the building trade as to the terms of the award of the umpire selected by the Board of Trade to hear the evidence from both the employers and the operatives as to their respective claims for alterations in wages, &c. Up to the time of writing the award had not been received. This affects the joiners more particularly, as the bricklayers have refused arbitration, and it is fully expected that a struggle in this branch of the trade is inevitable. Employment continues fairly good in all branches, joiners being the busiest. Stonemasons and plasterers are also busy. In the brick and tile yards good orders are on the books, both for local and export trade, and the operatives are working well. At Leek the building trade is moderately good, and all the operatives are fairly busy. At Crewe employment is very good, and joiners are working overtime. At Stafford a considerable improvement is manifest, and overtime is general with the operatives, particularly painters, who are now all fully employed. —*Staffordshire Sentinel.*

CARPENTERS' STRIKE IN BELFAST.—About 600 carpenters and joiners employed in the building trade in Belfast have come out on strike. They asked for a reduction of one and a half hours in the week and an increase in wages of ½d. per hour. The employers made a counter demand to employ whom they pleased in ringing and pointing and other preparatory work in making foundations, also outside six miles radius walking boundary to employ non-society men. The Carpenters and Joiners' Society offered to withdraw the demand for increase of wages if the masters would withdraw rule *re* foundation work. The masters refused, and the men struck work, the three months' notice having expired.

WAGES OF DECORATORS AND PAINTERS AT CARDIFF.—A meeting of the Cardiff District of the Amalgamated Society of House Decorators and Painters was held at the "British Volunteer," The Hayes, on the 30th ult., Mr. J. Utterson, district chairman, presiding. The object of the meeting was to receive from the district committee the result of their negotiations with the master builders and master painters of the district. Last January the members of the society submitted notices to the master builders and master painters for alterations in their working rules, including an advance of wage. The District Secretary, on behalf of the committee, now announced to the general body that, after interviews and discussions between the representatives of both parties, a settlement had been arrived at likely to prove satisfactory to all concerned—the men to receive an advance of ½d. per hour, commencing from May 1.

THE BRICKMAKING TRADE.—The strike in the brickmaking trade in the neighbourhood of London is practically settled, the majority of the masters having agreed to increase their original offer of 5s. 3d. per 1,000 to 5s. 7d., which the men were prepared to accept, although last year they were getting 6s.

STRIKE OF BRICKLAYERS' LABOURERS IN NEWCASTLE.—About three hundred bricklayers' labourers came out on strike on Saturday last in Newcastle and district for an increase in their minimum rate of pay of from 6d. to 7d. per hour, and for the alteration of their working rules with regard to apprentices and stone carrying on ladders. Twelve months ago a similar dispute occurred, and it was settled by the labourers being granted 7d. per hour. Since then several firms have reverted to the lower rate of wages, and it is the workmen thus affected who have left work.

LEGAL.

WORKMEN'S COMPENSATION ACT.

BASIS OF A LUMP SUM IN LIEU OF WEEKLY ALLOWANCE.

AN important case of arbitration, under the Workmen's Compensation Act, came before Judge Stonor on Tuesday at Marylebone County Court. The appellants were Messrs. W. Pattinson & Sons, builders and contractors, of Rushington, Sleaford, Lincolnshire; and the respondent was Trees Stevenson, a foreman joiner, living at 97, Hormead-road, Paddington.

Mr. Duckworth was counsel for the appellants, and Mr. Giveen, counsel, appeared for the respondent.

Counsel for the appellants explained that his clients were now applying to his Honour, in accordance with Section 13 of the first schedule of the Act, to decide as to the amount of a lump sum to be paid to the respondent in lieu of 1*l.* per week, to which it was admitted he was entitled under the Act. On December 7, 1898, the respondent was working for the appellants upon a building. When it became dark a strong light was used, and, in mistaking a shadow cast by the light to be properly secured boards, the respondent stepped into space and fell to the ground. By the fall his leg and ankle were seriously injured, From the day of the accident until the present time the poor fellow had been paid 1*l.* a week, with extra for a little work when he was able to go back. The learned counsel went on to submit that, as the Act provided that 300*l.* should be the maximum payable in case of a workman losing his life, the present respondent, who had only partially lost the use of one leg, could not expect to get more than 300*l.*, less the 96*l.* 12*s.* 9*d.* already paid to him.

Counsel for the respondent disagreed, maintaining that his Honour should name an amount sufficient to enable his client to obtain an annuity of 1*l.* a week.

The Judge: But then we must take the man's health and pursuit into consideration.

Mr. Duckworth: I maintain that in no case should the man get more than would have been payable if he had died.

The Judge: I do not see that. We have to consider what might be called "the equity of the Act."

Mr. Giveen: The equity of the Act comes to this: a widow could marry again, but this poor man cannot get a new leg.

Mr. Arthur Murrell, M.B., &c., who had attended the man, stated that both bones of the leg had been broken, and the ankle was badly fractured. At the present time it would be unsafe for the man to ascend ladders and climb about buildings, and witness did not expect that there would ever be much improvement.

Mr. Giveen handed in an actuarial table which showed that an annuity of 52*l.* would cost a man forty-six years of age—the respondent's age—750*l.* He was in a position also to prove that the man would have been accepted by an assurance company before the accident as a first-class life. This table anticipated that the man would only live to sixty years of age.

Mr. Duckworth replied that the table dealt with the probable duration of life, and not the probable duration of working capacity.

Mr. Giveen remarked that the man might live much longer than was anticipated by such a table, but, in any case, the contingency was thrust upon his client; he had not thrust it upon the appellants.

The Judge: The 52*l.* a year might be given to him for the difference between his former ability as a foreman and his present ability, and such a difference, I suppose, might affect him up to the age of sixty.

Mr. Duckworth said that if the man were unable to do any work whatever there might be something in his learned friend's contention, but the respondent was perfectly able to do some work.

Mr. Giveen replied that, although the appellants had taken the man back into their employ, they might sooner or later give up business or die, and the respondent, by no means a young man, and with an injured leg, might find it very difficult to find fresh employment in the building trade.

The Judge remarked that in assurance companies tables allowance must be made for working expenses and profits.

Mr. Giveen replied that the table which he had submitted was purely actuarial, and that the ordinary assurance companies charged more for an annuity than the price he had mentioned.

Ultimately his Honour fixed the amount to be paid by the appellants to the respondent at £600, allowing taxed costs.

Counsel for the appellants remarked that his clients might feel justified in appealing against his Honour's decision.

IMPORTANT ACTION AGAINST A HOLLOWAY BUILDER.

THE case of Drew-Bear, Perks, & Co. *v.* List came before the Lord Chief Justice and a special jury in the Queen's Bench Division on the 1st inst., an action brought by the plaintiffs, the well-known engineers and iron and steel merchants, to recover from the defendant, a builder, the sum of

410*l.* 13s. 3d., the price of certain iron girders, stanchions, and joists sold and delivered to the defendant by the plaintiffs. The defendant's case was that he was ready and willing to pay according to the terms of his contract, but alleged that the plaintiffs would not accept such payment. The defendant also counter-claimed for 1,000*l.* damages against the plaintiffs for their delay in the delivery of the girders according to the contract.

Mr. Reginald Bray, Q.C., in opening the case, stated that the goods in question were delivered to the defendant, who was building some premises called Elthorne Mansions, Holloway-road. The defence to the claim was that the defendant was ready and willing to pay in the manner agreed, but the plaintiffs refused to accept payment except by the full amount in cash. The defendant, however, did not pay the amount into Court, which was usual in the case of such a plea. With reference to the defendant's counter-claim, the learned counsel admitted that there had been some delay in the delivery of the girders by the plaintiffs, but he supposed that that was the case in almost every case where any quantity of iron goods had to be delivered towards the close of last year. He hoped to satisfy the jury that the defendant had suffered no substantial damage by the delay. Counsel then referred to the contract which was contained in the correspondence which had passed between the parties by which the plaintiffs undertook to do their best to deliver the goods by the end of August last. The arrangement for payment was that the defendant should pay for the goods by the payment of one-half the amount in cash on the 10th of the month following delivery, and to give a three-months' bill for the balance. Certain of the goods were supplied in the month of August, in payment of which it was arranged the defendant should give a bill. This was done. The question of delivery of the remainder of the goods then arose, and it was arranged that the plaintiffs should complete their delivery by the end of September, the plaintiffs to be paid for same a half in cash by October 10, and the remaining half by a three-months' bill accepted by the defendant. However, some delay took place in the delivery of some of the girders, until some time in October, and therefore the arrangement for payment was deferred till November 10. It appeared that the defendant complained that the girders were not delivered by the plaintiffs in their proper order, and that some of them were not of the proper length.

His Lordship addressing Mr. Tindal Atkinson, Q.C. (counsel for the defendant), said he understood that the plaintiffs delivered the whole of the goods by November 10, and that the defendant was bound to pay on November 10, half of the price for same in cash and to give a bill at three months for the other half.

Mr. Atkinson agreed that that was so, but the amount of the plaintiffs' claim was subject to have set off against it the amount of the damages for delay for delivery of the goods according to the terms of the contract to which the defendant was found to be entitled.

Mr. Bray, continuing his address, said that the plaintiffs had delivered two-thirds of the goods by the end of September and the remaining one-third by the end of October or the beginning of November.

Evidence having been given in support of the plaintiffs' case,

Mr. Atkinson, for the defendant, contended that his client had suffered material and substantial damage by reason of the delay of the plaintiffs in not delivering the goods within the time specified by the contract.

The defendant, examined, stated that he was a builder, and that his architect for the building in question was Mr. White. It was most important for him that the girders should have been delivered in their proper order. His order for regularity in delivery of the girders was not observed by the plaintiffs at all. The plaintiffs sent men to his works to shorten two of the girders. They were there for about a fortnight, and his work was delayed accordingly. His men were delayed in waiting for the girders. His men were only half employed while they were being paid full wages. By reason of the delay in delivery of the girders and stanchions he could not do the roofing-in before Christmas. If that could have been done the building could have been completed by March last. As things now stood the building would not be completed till September next. They were roofing-in the building now. He accounted for the six months' delay by reason of the plaintiffs bringing him into the winter months unnecessarily. If the girders had been delivered according to the contract, the building would have been let by March 25 last. The rent of the building would be approximately 1,000*l.* a year.

Thomas Beckett, the defendant's foreman, also gave corroborative evidence. He said that the girders did not come in their proper order, and the consequence was that the whole job was spoiled.

His Lordship: You mean that it put the whole job out of gear?

The witness said that that was what he meant. The men had to be shifted from one job to another. Some of the girders delivered were not according to plan. If the girders had been delivered in their proper order they could have been fixed within three weeks; as it was it took nine weeks to fix them.

Mr. W. H. White, the defendant's architect, also gave evidence in support of the defendant's case. He said it would have been impossible for the work to have been proceeded with in a satisfactory manner until all the girders were in position.

This evidence concluding the defendant's case, Counsel addressed the jury on behalf of their respective clients, and his Lordship having summed up, the jury returned a verdict for the plaintiffs for the amount of the claim and for the defendant on the counter-claim for 125*l.*, and judgment was entered accordingly.

LONDON COUNTY COUNCIL *v.* WANDSWORTH AND PUTNEY GAS LIGHT AND COKE COMPANY.

AT the South-Western Police-court, Mr. Garrett has just given his decision on a summons issued by the London County Council against the Wandsworth and Putney Gas Light and Coke Company for failing to set back a new building on their premises at the prescribed distance from the centre of the highway. The case originally came before the magistrate last November, when the law on the matter was argued by Lord Robert Cecil, Q.C., counsel for the company, and Mr. Daldy, counsel for the Council, the former contending that the private Acts of the company overrode the general Act of Parliament. His worship upheld that view, and dismissed the summons against the company, allowing them ten guineas costs. The County Council appealed against the decision, and a Divisional Court, consisting of Justices Ridley and Darling, upheld the appeal and sent the case back to the magistrate for conviction. Mr. Cooper, solicitor to the company, asked that the smallest penalty should be imposed, in view of the fact that a Parliamentary Committee was at present considering the petition of the company respecting the stopping-up of the two roads—Waterside and Worple-road—which flanked the new building, as to the site of which the original dispute arose. Mr. Chilvers, on behalf of the County Council, pointed out that they were not asking for a daily penalty. Mr. Garrett imposed a penalty of 40s. with ten guineas cost.

MEETINGS.

FRIDAY, MAY 4.

Royal Institution.—Professor T. E. Thorpe on "Pottery and Plumbism." 9 p.m.

Glasgow Architectural Craftsmen's Society.—Business meeting. 8 p.m.

SATURDAY, MAY 5.

Royal Institution.—Professor Stanley Lane-Poole, M.A., on "Egypt in the Middle Ages." II. 3 p.m.

Sanitary Inspectors' Association. — Mr. F. Wallis Stoddart on "The Principles of Sewage Filtration." 6 p.m.

British Institute of Certified Carpenters (Carpenters' Hall).—6 p.m.

Edinburgh Architectural Association.—Visit to Bothwell Castle and Church.

MONDAY, MAY 7.

Royal Institute of British Architects.—Annual general meeting to receive the annual report, &c. 8 p.m.

Society of Arts (Cantor Lectures).—Professor Vivian B. Lewes on "The Incandescent Gas Mantle and its Use."—I. 8 p.m.

Society of Engineers.—Mr. B. D. Healey on "The Economical Disposal of Town Refuse." 7.30 p.m.

Liverpool Architectural Society.—Closing address by the President, Mr. E. A. Ould. 6 p.m.

TUESDAY, MAY 8.

College for Men and Women, 29, Queen-square, Bloomsbury (Free Lectures on Architecture).—Mr. Halsey Ricardo on "Colour in Architecture." 8.30 p.m.

Society of Arts (Applied Art Section).—Mr. Nelson Dawson on "Art Metal Work." 8 p.m.

Society of Biblical Archæology.—Mr. F. Legge on "The Slate Palettes from Hieraconpolis and elsewhere." 4.30 p.m.

WEDNESDAY, MAY 9.

Architectural Association. — Annual Soirée (Dress Rehearsal, Ladies' Night), St. George's Hall, Langham-place, W. A musical play to be performed, entitled: "The Mayor of Montilado: a Spanish Romance." 8 p.m.

Society of Arts.—Mr. A. Moresby White on "Improvement of Our Roads." 8 p.m.

Institute of Sanitary Engineers (Incorporated).—General Purposes and Finance Committee at 3.30 p.m. Election Committee at 5 p.m. Council Meeting at 7 p.m.

THURSDAY, MAY 10.

Architectural Association.—Annual Soirée, St. George's Hall, Langham-place, W. 8 p.m.

Carpenters' Hall, London Wall (Lectures on Carpentry and Joinery). — Mr. S. Barter on "Joinery, Windows." 7.30 p.m.

Institution of Electrical Engineers.—Meeting at the Society of Arts, John-street, W.C. Mr. S. Evershed on "A Frictionless Motor Meter." 8 p.m.

FRIDAY, MAY 11.

Architectural Association.—Mr. Alexander Payne on "Egyptian Temples." 7.30 p.m.

Sanitary Institute.—The Institute Dinner, Venetian Chamber, Holborn Restaurant. 7 p.m.

SATURDAY, MAY 12.

Northern Architectural Association. — Visit to Y.M.C.A. and warehouses, Low Friar-street, Newcastle.

RECENT PATENTS:

ABSTRACTS OF PATENTED INVENTIONS.

64.—TELEMETERS: *A. Wirth.*—A right-angled frame, which carries the telescope, is supported by a stand with horizontal and vertical adjustments, and having guides so curved that the telescope shall move always parallel-wise to itself; in operation the telescope may rest, say, upon a stop and a series of points in a straight line are observed, it is then turned through a very small known angle and the guides keep it parallel to itself, the distances of the points are read off the scale upon the guides as the points again pass, in succession, into the line of sight.

76.—WINDOW HOLDERS: *Erie Safety Window Company.*—The holders are devised for removable sliding sashes. Vertical grooves, wherein strips are held by the lifting cords, are cut in the edges of the window frame and the sashes; in each of the latter is a removable pin which engages with a notch in each strip's outer edge, whilst notches in the strip's inner edge engage with bolts that are inserted through the frame and retain the sashes in any desired position. Upon withdrawal of the pins from the notches on the outer edges of the strips, the sashes can be removed.

92.—LIFTING JACKS: *F. Weeks.*—In order to raise the ram to the load, an auxiliary pump is used in conjunction with the lifting pump, so that power is obtained for raising the load by putting the larger pump out of action. Above one pump's outlet valve is mounted a spindle which carries a relief valve; the two pumps work together when the relief valve is closed, but the pump is placed out of action when the relief valve is opened by means of a hand-wheel, and the water returns into the reservoir at each stroke; when the valve's stem is lowered further it opens another valve, and so enables the ram cylinder to discharge again into the reservoir, whereby the load is lowered.

140.—SAWING MACHINE BENCHES: *F. Rockefeller*—For lifting and lowering the bench it is carried upon the edges of two hinged bars, which are joined together, so that they shall move always parallel-wise to one another, by a rod on which is a pin that passes through a hole in the bar, which is to be adjusted with a handscrew for the purpose of lowering or raising the bench which is hinged on to one of the parallel bars.

165.—COUPLINGS FOR ELECTRICAL LAMPS: *C. T. Briscoe, E. Jones, & T. S. Jones.*—To prevent the conductors from becoming twisted the tapered inner ends of the cord-grips are formed squared or angular in section, or partly circular with one flat side or more, and so will fit into a corresponding opening in the lamp-holder, the outer parts being cone-shaped, to take the screw cap: the cord-grips are described as being suitable for plugs, ceiling roses, and electroliers.

172.—BRICK MOULDING: *T. C. Fawcett.*—The mould's four sides are pivoted in recesses formed in the bottom plunger, so that when the plunger is lifted they will fall outwards, but the outer sloped surfaces of the four sides press against wedge-shaped plates (fitted with elastic backings) when the plunger is lowered; the plate-backings, formed of rubber, spiral springs, &c., are contrived to prevent the mould-box from becoming jammed or locked in the table, and by retaining its pivoted sides in close contact with the pressed brick after the plunger has been lifted, to fashion a brick with its corners and edges sharp and clean.

176.—AN APPLIANCE FOR MITERING PURPOSES: *W. W. J. Nicol.*—The invention consists of a device wherewith the board can be held at the angle desired, and the plane can be guided; the board-supports are held between two side planks which are rabbetted at the top, and so guide the plane.

196.—ROOFING-TILES: *G. Ree.*—For fettling and ornamenting rough plastic ridge tiles; the tiles are put upon frames whose hinged sides are shaped to correspond with the tiles when finished, a V-shaped recess is cut in the middle of the crest, and the top corners are cut away, when the sides have been turned backwards the tile is lifted upon the frame's upper portion, the operation being facilitated by means of cross ribs made with openings between the sides.

264.—INCANDESCENT VAPOUR LAMPS: *R. L. Doran.*—The vaporising apparatus, which is self-contained, is fastened with a clamp on to the mixing-tube and the burners; it includes a valve for regulating the oil supply and a vapour-nozzle, a screw-cap effects an adjustment of the air-space between the mixing tube's end and the nozzle.

334.—CAGES AND LIFTS: *F. Rigby and W. R. Taylor.*—The invention is devised to effect an automatical opening and closing of well doors: a flap is hinged upon the door's inner side, and upon the flap's inner edge is fastened a plate that passes between rollers upon the outer end of a bar, which slides in horizontal guides upon the cage's side, the bar has a slide pin for engagement with a slot in an arm affixed to a cross shaft; a roller upon the cross-shaft's end outside the cage engages with a guiding groove, along the well's entire depth, which is shaped so that, with the cage's approach to the floor, the bar-rollers engage with the plate, whereby by means of a turn of the arm the bar is forced outwards, and the door is opened—this action is reversed as the cage leaves the floor; for a locking contrivance, a locking-bar slides ver-

tically upon a plate fastened at the side of the well-opening, and has a hook for engagement with a bar of a similar shape upon the door; pins upon the locking-bar engage with slots cut diagonal-wise in plates attached to a plate which, with the cage's approach to the floor, engages with a plate thereon and is thereby forced inwards, so that the locking-bar becomes free from engagement with the door. A spring returns the locking-bar and the plate to their normal positions when the other plate is withdrawn, and they are then in place for locking the door.

345.—FIREPROOF COMPOSITIONS FOR WOOD AND OTHER SURFACES: *H. V. Simpson and British Non-Flammable Wood Company.*—For a fireproof zinc paint an admixture is made of silicate powder, borax (or aluminium hydrate), ammonium phosphate, sodium chloride, and white or coloured zinc paint—the ingredients should be first ground in oil before the addition of the zinc or lead paint; for the ammonium phosphate may be substituted ammonium chloride; for coating outside surfaces the lead or zinc paint may be replaced with whitening or lime solution, size or linseed or other oil being added, and silicate of soda being used instead of silicate powder.

356.—RODS AND TUBES FOR ELECTRICAL INCANDESCENT LAMPS: *L. W. Gans.*—The rod or tube, moulded from an earthy oxide, is fired, coated on either its outside or inside with iridium, rhodium, osmium, or some other highly fusible metal prepared as a ceramical lustre, and then heated in a muffle containing a reducing-gas, to a high temperature. For the oxide may be employed lime, baryta, strontia, magnesia, &c.; and it may be mixed with water and about 1 per cent. of boric, silicic, or phosphoric acid to give it substance and consistency. The tubes are from 5 to 15 millimètres in length, are from 1 to 5 millimètres in thickness, and have an internal diameter of 2 or 3 millimètres.

387.—WALL-HOOKS, INSULATOR-HOLDERS, AND HOLDFASTS: *F. Unterberg.*—The articles are made out of plates shaped in the form of a cross, the top and bottom arms being bent downwards and corrugated, and the two other arms having holes for the fastening of insulators; the specification also describes the process of making the articles and the dies and punches employed.

401.—ATMOSPHERICAL GAS-BURNERS: *H. O. Strong.*—In order to ensure a speedy mingling of air and gas, some holes are made through the nipple upon the gas inlet; holes are also made in the chamber into which the mingled air and gas flows, the chamber being contracted in its length so that a better mixture may be obtained; tubes are provided for admitting a further supply of air into the chamber.

417.—A PRESERVATIVE PAINT: *C. N. Nielsen.*—For coating and preserving roofing material, &c., a composition is formed of coal tar 55 per cent., water-ground chalk 20 per cent., ground Thomas Gilchrist slag 15 per cent., turpentine ·5 per cent., and pulverised burned clay 9·5 per cent.

423.—DISINFECTION AND TESTING OF DRAINS: *C. T. Kingzett.*—The fumigating compound or disinfectant is to be placed inside an elastic ball whose cover or lid is secured with bound string, which becomes unwound, and so frees the lid, when the ball has been washed through the trap.

PRICES CURRENT OF MATERIALS:

WOOD.*

Per Petersburg standard hundred.

	£	s.	d.	£	s.	d.
White Sea: first yellow deals	18	0	0	23	0	0
Second do.	16	10	0	18	0	0
Third do.	13	10	0	14	10	0
Battens, 40s., 30s., and 15s. less respectively.						
Petersburg: first yellow deals	15	10	0	18	0	0
Second do.	13	0	0	14	0	0
Battens, 30s. and 20s. less respectively.						
Petersburg, white deals	12	10	0	15	0	0
Do. white battens	10	0	0	11	10	0
Riga, white deals	10	10	0	11	10	0
Swedish mixed yellow deals	16	0	0	21	0	0
,, Third do.	14	0	0	17	0	0
,, Fourth do.	13	0	0	14	0	0
,, Fifth do.	12	0	0	13	0	0
Battens, 30s., 20s., and 10s. less respectively.						
Whitewood, 10 to 20 per cent. less.						
Finnish unsorted yellow deals	11	10	0	12	0	0
Battens, 10s. and 5s. less respectively.						
Whitewood, 5 to 10 per cent. less.						
Norwegian second yellow battens	8	0	0	8	5	0
Third do.	7	10	0	8	0	0
Fourth do.	7	5	0	7	10	0
Whitewood, 10s. less.						
Danzig, Crown Deck deals, per 40 ft. 3 in.	0	15	0	1	5	0
Brack	0	12	0	1	0	0
St. Lawrence Pine deals, &c., per P.S.H.:—						
1st, Bright and Dry, regular sizes	21	0	0	28	0	0
,, ,, oddments	14	10	0	22	0	0
2nd ,, regular sizes	16	10	0	19	0	0
,, ,, oddments	11	0	0	15	10	0

* The prices named are for the wood as imported and landed in the docks. Ten per cent., approximately, should be added in order to arrive at the current trade prices.

PRICES CURRENT (*Continued*).

	£	s.	d.	£	s.	d.
3rd, Bright and Dry, regular sizes	10	10	0	11	10	0
,, ,, oddments	9	0	0	10	0	0
4th ,, regular sizes	9	10	0	10	10	0
,, ,, oddments	8	10	0	9	10	0
St. Lawrence Spruce deals, &c.						
First, regular sizes	11	0	0	13	10	0
Second ,,	10	0	0	10	10	0
Third ,,	9	15	0	10	0	0
Fourth ,,	9	5	0	9	15	0
Oddments and battens at 20s., 10s., 7s. 6d., and 5s. less respectively.						
New Brunswick Spruce deals, &c.	9	15	0	11	0	0
Oddments, battens, and fourths	9	5	0	9	15	0
United States pitch pine planks and boards	11	10	0	16	0	0
Prepared Boards, per square						
1¼ by 6½ and 7 in. 1st yellow		11	0		16	0
,, ,, 2nd ,,		10	6		13	0
1 by 6½ and 7 in. 1st ,,		10	0		12	0
,, ,, ,, white		9	0		10	0
,, ,, 2nd yellow		9	0		11	0
,, ,, ,, white		8	0		9	0
¾ by 6½ & 7 in. 1st & 2nd yellow		7	9		9	0
,, ,, ,, white		7	6		8	6
¾ by 6½ and 7 in. 1st yellow and white (grooved, tongued, and beaded)		8	6		9	6
¾ by 6½ and 7 in. 2nd yellow and white (ditto)		7	6		8	6
¾ by 6½ and 7 in. 1st yellow and white (ditto)		6	6		7	6
¾ by 6½ and 7 in. 2nd yellow and white (ditto)		6	0		7	0
Narrower widths at 10 per cent. less.						
3rd quality at 15 per cent. less than 2nd.						
Danzig and Memel Fir Timber— per load						
Best middling	3	15	0	4	0	0
Good middling and Second	3	5	0	3	10	0
Common middling	3	0	0	3	5	0
Undersized	3	0	0	3	5	0
Swedish and Norwegian Balks	2	10	0	2	15	0
Baltic Oak Timber—						
Danzig and Stettin—Large	4	0	0	5	10	0
Small	3	5	0	4	0	0
Quebec Timber per load						
Yellow Pine	5	0	0	6	10	0
Oak	4	10	0	6	10	0
Elm	4	0	0	4	5	0
Ash	3	5	0	4	0	0
Birch	3	15	0	6	0	0
New Brunswick, &c., Birch	3	10	0	4	5	0
American Pitch Pine Timber	3	17	6	4	17	6
Wainscot, per log, 18 cubic ft.—						
Crown (Eng. & Dutch) nominal	3	15	0	4	17	6
Brack nominal	3	0	0	4	0	0
Lathwood, per cubic fathom—						
Petersburg	4	0	0	6	10	0
Riga and Danzig	4	10	0	5	10	0
Norway Poles, per ft. run	0	0	1	0	0	1½
Oak Staves, per mille full size pipe						
Memel, Crown	220	0	0	230	0	0
Brack	190	0	0	200	0	0
Danzig	165	0	0	175	0	0
Bosnia, single Barrel (nominal)	28	0	0	30	0	0
United States, Pipe	37	10	0	45	0	0
Hogshead, extra heavy and double extra	30	0	0	35	0	0
Indian Teake per load	11	10	0	16	10	0
British Guiana Greenheart	0	0	0	8	0	0
Mahogany, per foot superficial—						
Honduras, cargo average	0	0	4½	0	0	5½
Nicaragua, do.	0	0	4½	0	0	5½
Tabasco, do.	0	0	4½	0	0	6
Mexican, do.	0	0	4	0	0	4½
Panama, do.	0	0	3½	0	0	4
African, do.	0	0	3½	0	0	5
Cuba, do.	0	0	6	0	0	8
St. Domingo, do.	0	0	5	0	0	7½
Do. Curls (good to prime)	0	0	9	0	1	3
Walnut, American (logs)	0	3	0	0	5	0
Do. do. (planks and boards)	0	2	0	0	7	6
Italian, per foot superficial	0	0	3	0	0	7½
Black Sea, per ton	6	0	0	12	0	0
Satin Walnut (logs) per foot cube	0	1	0	0	1	6
,, (planks and boards)	0	1	9	0	3	0
Sequoia (Californian redwood), per foot cube	0	1	9	0	2	0
Whitewood, American (logs)	0	1	4	0	1	9
,, ,, (planks and boards)	0	1	9	0	2	9
Quartered oak ,, ,,	0	2	3	0	4	0
Kauri pine (logs)	0	1	9	0	2	0
,, ,, (planks)	0	2	3	0	2	9
Jarrah (planks)	0	2	0	0	2	3
Lancewood spars each, fresh and large	0	5	0	0	7	0
Lancewood spars, ordinary to fair	0	3	0	0	4	0
Degame spars	0	8	0	0	10	0

METALS.

	£	s.	d.	£	s.	d.
IRON—Pig, in Scotland ton	3	12	5	0	0	0
Bar, Welsh, in London	9	0	0	9	15	0
Do. do. at works in Wales	8	10	0	9	0	0
Do. Staffordshire, in London	9	15	0	11	15	0
COPPER—British cake and ingot	80	0	0	80	10	0
Best selected	81	0	0	82	0	0
Sheets, strong	84	0	0	86	0	0
Chili bars	76	7	6	0	0	0
YELLOW METAL lb.	6½d.			7d.		
LEAD—Pig						
Spanish ton	16	16	3	0	0	0
English Com. Brands	17	5	0	0	0	0
Sheet, English, 6 lbs. per sq. ft. and upwards	18	15	0	0	0	0
Pipe	19	5	0	0	0	0
White Lead	25	10	0	0	0	0
ZINC—						
Vieille Montagne ton	28	15	0	0	0	0
Silesian	28	5	0	0	0	0
Spelter	21	15	0	21	17	6
TIN—Straits	137	0	0	0	0	0
Australian	137	5	0	137	15	0
English Ingots	140	0	0	141	0	0
Banca	0	0	0	0	0	0
Billiton	0	0	0	0	0	0

PRICES CURRENT (*Continued*).

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2½d. per ft. delivered.
,, fourths	2d. ,, ,,
21 oz. thirds	3d. ,, ,,
,, ,, fourths	2½d. ,, ,,
26 oz thirds	4d. ,, ,,
,, ,, fourths	3½d. ,, ,,
32 oz. thirds	5d. ,, ,,
,, ,, fourths	4½d. ,, ,,
Fluted sheet, 15 oz.	2½d. ,, ,,
,, ,, 21 ,,	3½d. ,, ,,

OILS, &c.

Raw Linseed Oil in pipes, per ton	28	10	0	0	0	0
,, ,, ,, in drums, per gal.	0	2	5	0	0	0
Boiled ,, ,, in pipes, per ton	30	10	0	0	0	0
,, ,, ,, in drums, per gal.	0	2	7	0	0	0
TAR—Stockholm barrel	1	6	6	0	0	0
Archangel	1	0	0	0	0	0
Turpentine, in barrels, per cwt.	2	4	0	0	0	0
,, in drums, per gal.	0	3	6	0	0	0
Genuine Ground English White Lead	25	10	0	0	0	0
Red Lead	22	0	0	0	0	0
Best Linseed Oil Putty, per cwt.	0	8	0	0	0	0

VARNISHES, &c.

	per gallon.		
Fine Elastic Copal Varnish for outside work	0	16	0
Best Elastic Copal Varnish for outside work	1	0	0
Best Elastic Carriage Varnish for outside work	0	16	0
Best Hard Oak Varnish for inside work	0	10	0
Best Extra Hard Church Oak Varnish for inside work	0	10	0
Fine Hard Copal Varnish for inside work	0	16	0
Best Hard Copal Varnish for inside work	1	0	0
Best Hard Carriage Varnish for inside work	0	16	0
Extra Pale Paper Varnish	0	12	0
Best Japan Gold Size	0	10	0
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	8	0
Brunswick Black	0	8	0
Berlin Black	0	15	6
Knotting	0	9	0
Best French and Brush Polish	0	8	6

BRICKS, &c.

	s.	d.				
Hard Stocks	30	0	per thousand alongside, in river.			
Rough Stocks and Grizzles	28	0	,,	,,	,,	,,
Smooth Bright Facing Stocks	58	0	,,	,,	,,	,,
Shippers	42	0	,,	,,	,,	,,
Flettons	29	0	,,	,,	at railway depôt.	
Red Wire Cuts	34	0	,,	,,	,,	,,
Best Fareham Red	71	6	,,	,,	,,	,,
Best Blue Pressed Staffordshire	86	0	,,	,,	,,	,,
Best Stourbridge Fire Bricks	84	0	,,	,,	,,	,,
Best White Glazed Stretchers	260	0	,,	,,	,,	,,
Headers	240	0	,,	,,	,,	,,
Quoins and Bull-nose	340	0	,,	,,	,,	,,
Double Headers	320	0	,,	,,	,,	,,
Best Dipped Salt Glazed Stretchers and Headers	240	0	,,	,,	,,	,,
Quoins and Bull-nose	280	0	,,	,,	,,	,,
Double Headers	230	0	per thousand at railway depôt.			
Seconds Quality White and Dipped Salt Glazed	40	0	per thousand less than best.			
Thames and Pit Sand	7	0	per yard, delivered			
Thames Ballast	6	6	,,	,,		
Best Portland Cement	34	0	per ton	,,		
Best Ground Blue Lias Lime	23	0	,,	,,		

NOTE.—The cement and lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime 12s. 0d. per yard, delivered.
Stourbridge Fire-clay in sacks, 31s. 6d. per ton at rly. dpt.

STONE.

	s.	d.			
Ancaster in blocks	2	0	per ft. cube, deld. rly. depôt		
Bath ,,	1	7	,,	,,	
Beer ,,	1	6½	,,	,,	
Grinshill ,,	1	10	,,	,,	
Brown Portland in blocks	2	2	,,	,,	
Darley Dale ,,	2	1½	,,	,,	
Red Corsehill ,,	2	5	,,	,,	
Red Mansfield ,,	2	4½	,,	,,	
Hard York ,,	2	10	,,	,,	
Hard York 6 in. sawn both sides landings, to sizes (under 40 ft. sup.)	2	7	per ft. super. at rly. depôt.		
,, ,, 6 in. Rubbed Ditto	2	10½	,,	,,	
,, ,, 3 in. sawn both sides slabs (random sizes)	1	3	,,	,,	
,, ,, 3 in. self-faced Ditto	0	9	,,	,,	

SLATES.

in.	in.	£	s.	d.		
20 × 10	best blue Bangor	11	5	0	per 1000 of 1200 at ry. dep.	
,,	best seconds	,,	10	15	0	,, ,,
16 × 8	best	,,	6	2	6	,, ,,
20 × 10	best blue Portmadoc	,,	10	18	0	,, ,,
16 × 8	,,	,,	6	0	0	,, ,,
20 × 10	best Eureka unfading green	11	2	6		,, ,,
16 × 8	,,	,,	6	15	0	,, ,,
20 × 10	Permanent green and Sedan green	10	0	0		,, ,,
16 × 8	,,	,,	5	12	6	,, ,,

TILES.

	s.	d.			
Best plain red roofing tiles	40	6	per 1,000 at rly. depôt.		
Hip and valley tiles	3	6	per doz.	,,	,,
Best Broseley tiles	47	6	per 1,000	,,	,,
Hip and valley tiles	4	0	per doz.	,,	,,

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered
*Church and Schools	Trustees	25*l.*; 15*l.*; 10*l.*	No date

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c., Supplied by	Tenders to be delivered
Granite, &c.	Rothwell U.D.C.	W. T. Pearson, Surveyor, Rothwell, near Kettering	May 8
Farm Buildings, Kildrummy, N.B.	.....	A. Taylor, Castle Cottage, Kildrummy, N.B.	do.
Church Restoration, Ansley, near Atherstone	.....	Scrivener & Sons, Architects, Hanley	do.
Sewerage Works, Killamarsh	Chesterfield R.D.C.	H. Walker, Civil Engineer, Albion Chambers, Nottingham	do.
Two Houses, Bassett-road, Camborne, Cornwall	.....	Mr. Moffatt, Market Place, Camborne	do.
Shed, West Fen	Boston (Lincs.) Corporation	Borough Surveyor, Market Place, Boston	do.
Chapel, Llanbradach, Wales	.....	R. Rogers, Ty-Maesyfed, Pontypridd	do.
*Road Material	Lewisham Board of Works	Surveyor's Department, Town Hall, Catford, E.	do.
*Making-up Roads	Tottenham U.D.C.	P. E. Murphy, 712, High-road, Tottenham	do.
*Making-up Roads	Chiswick U.D.C.	Surveyor, Council's Offices, Sutton Court, Chiswick	May 9
Cast-Iron Pipes	Enfield U.D.C.	R. Collins, Court House, Enfield	do.
Offices, St. Michael's-road	Portsmouth Guardians	Rake & Cogswell, Architects, Prudential Buildings, Portsmouth	do.
Bridge, Kirton Holme, &c.	Holland (Lincs.) County Council	L. Starkie, Surveyor, Boston	do.
Club Premises, Brixham, Devon	.....	E. Richards, Architect, 7, Strand, Torquay	do.
Villa, Beechwood-avenue, Pontefract	.....	W. Hurst, Architect, Pontefract	do.
Stabling, Joiners' Arms, Newton, Northumberland	.....	M. T. Wilson, Architect, Alnwick	do.
Entrance Lodge, Baildon, Yorks.	.....	Isitt & Co., Architects, Bradford	May 10
Additions to Schools, Abernaut	Aberdare School Board	T. Roderick, Architect, Clifton-street, Aberdare	do.
Grand Stand, &c., Paignton, Devon	Agricultural Show Committee	F. W. Puddicombe, Paignton	do.
Additions to House, near Avonwick, Devon	Mr. J. S. Bartlett	Mr. Barrons, Weir View, Totnes	do.
Schools, Dufftown, N.B.	Mortlach School Board	Sutherland & Jamieson, Architects, Elgin	do.
Fifteen Cottages, Minworth	Birmingham, &c., Drainage Board	J. D. Watson, Engineer, Minworth	do.
*Laundry	War Department	Royal Engineer's Office, North Aldershot	do.
Chapel, Duffryn-road, Mountain Ash, Glam.	.....	Morgan & Elford, Architects, 1, High-street, Mountain Ash	May 11
Bridge, Dent Gate-road, Kinninvie	Barnard Castle R.D.C.	W. Parkin, Surveyor, Barnard Castle	do.
Pair Villas, Queen's-road, Bradford	.....	J. Ledingham, Architect, District Bank Chambers, Bradford	do.
Chapel, Castlebar, Ireland	Lunatic Asylum Visitors	J. T. Kelly, Asylum, Castlebar	May 12
Pipe Laying	Warrington Corporation	J. Deas, Civil Engineer, Bank House	do.
*Church Hall	.....	C. J. Mann & Son, 29, Great George-street, Westminster	do.
*Workhouse Infirmary	Romsey Union	J. Jenvey, Architect, Market Place, Romsey	do.
Electrical Plant	Rhyl U.D.C.	G. R. Peers, 96, Deansgate, Manchester	May 14
Sewers	Lydney (Glos.) R.D.C.	W. H. Thelwall, Civil Engineer, 3, Tokenhouse-buildings, E.C.	do.
Footbridge, Llantarnam	Pontypool, &c., District Council	R. Matthews, Surveyor, Cemetery House, Llantarnam	do.
Church Spire, &c., Athenry, co. Galway	.....	J. G. Skipton, Civil Engineer, Athlone	do.
Street Works	Levenshulme (Lancs.) U.D.C.	J. Jepson, Surveyor, Guardian Chambers, Tiviotdale, Stockport	do.
Sewers, Great Orme's Head, North Wales	Llandudno U.D.C.	E. P. Stephenson, Civil Engineer, Church Walks, Llandudno	do.
Reservoir, Great Orme's Head	do.	do.	do.
Pavilion	Andover Town Council	Borough Surveyor, Town Hall	do.
*Additions to Stapenhill Mission Room School	Burton-on-Trent (U.D.) Sch. Bd.	Clerk, School Board Offices, Burton-on-Trent	do.
*Wrought-iron Palisade Fencing and Gates	do.	do	do.
*Lamps, Lanterns, and Stand Pipes	Egham Parish Council	Clerk, Council Offices, High-street, Egham	May 15
Three Cottages, Eslington	Lord Ravensworth	H. Wallace, Trench Hall, Gateshead	do.
Street Works, South Kirkby, Wakefield	.....	Garside & Pennington, Surveyor, Pontefract	do.
Additions to Garner House, Broughton	Mr. J. Garner	J. Garner, Broughton-in-Furness	do.
Gasworks (1st Section) Provan	Glasgow Corporation	W. Foulis, Engineer, 45, John-street, Glasgow	do.
*Brick Sewer	St. Luke's (Middlesex) Vestry	Surveyor's Department, Vestry Hall, City-road, E.C.	do.
*Sewer Works and Paving Works	Westminster Vestry	Surveyor, Town Hall, Westminster, S.W.	May 16
Basement of Hotel, Felixstowe, Suffolk	Hon. D. A. Tollemache	T. W. Cotman, Architect, Northgate-street, Ipswich	do.
*Painting, &c.	Islington Guardians	W. Smith, Architect, 65, Chancery-lane, W.C.	May 17
*Municipal Buildings	Reigate Town Council	Mackintosh & Newman, Birkbeck Bank Chambers, Holborn	do.
Sewerage Buildings	Bolton Corporation	Hinnell & Murphy, Civil Engineers, 13, Mawdsley-street, Bolton	do.
House, Stables, &c., Rhodes Farm	do.	do.	do.
*Street Paving Stones	Glasgow Corporation	Master of Works, City Chambers, Glasgow	do.
*Buildings and Alterations	Northumberland County Council	J. Cresswell, Architect, Moot Hall, Newcastle-on-Tyne	May 21
House, Stabling, &c., Old Hill, Staffs.	Rowley Regis U.D.C.	D. Wright, Council Offices, Old Hill	do.
Electricity Plant, London	Central Electric Supply Co., Ltd.	F. J. Walker, 19, Carnaby-street, Golden-square, W.	May 22
Engine Shed, &c., Colne (Lancs.)	Lancs. & Yorks. Railway Company	R. C. Irwin, Hunt's Bank, Manchester	do.
Refuse Destructor	Taunton Town Council	J. H. Smith, Borough Surveyor, Municipal Offices	May 24
*Wood Paving	Cheltenham Corporation	Borough Surveyor, Municipal Offices, Cheltenham	May 28
Steel Bridge, &c., Camber, Portsmouth	.....	A. Hellard, Town Hall, Portsmouth	do.
Drill Hall, Dingle-lane, Winsford, Cheshire	.....	J. H. Cooke, Winsford	May 30
*Public Buildings	East Ham U.D.C.	Surveyor, Public Offices, East Ham, E.	June 4
Church, Nevin, near Pwllheli, Carnarvon	.....	P. S. Gregory, Architect, Bangor	No date
Banking Premises, Spalding	Lincoln & Lindsey Bank Co., Ltd.	J. H. Cooper, Architect, Lindum-road, Lincoln	do.
Eight Cottages, Station-road, Sedbergh	Charity Commissioners	J. Hutton, Architect, Kendal	do.
Villa, Arnside, Kendal	Mr. R. Bush	J. Stalker, Architect, Kendal	do.
Wall, &c., Sheffield	Norton Burial Board	Clerk, Derbyshire-lane, Norton, Sheffield	do.
Seven Houses, Withnell, Blackburn	.....	W. Stirrup, Architect, 14, Richmond-terrace, Blackburn	do.
Villa, Conisborough, near Doncaster	.....	Athron & Beck, Architects, Doncaster	do.
Additions to Farm, &c., Cattleholmes	Mr. T. Williams	J. Shepherdson, Architect, 15, Manor-street, Bridlington	do.
Weaving Shed, &c., Linthwaite, Yorks.	Messrs. Whitwam & Co.	A. Shaw, Architect, Knowl, Golcar	do.
Additions to School	Gateshead School Board	Thompson & Dunn, Archt., St. Nicholas'-bldgs., Newcastle-on-Tyne	do.
Two Houses, South Drive, Harrogate	Mr. R. T. Hodgson	Bland & Bown, Architects, Harrogate	do.
Shop, &c., Raynes Park	.....	F. G. Hughes, Architect, Hampton, Middlesex	do.
Shops, Storerooms, &c., Highbury-road	Bulwell (Notts.) Co-op. Soc., Ltd.	W. Betts, Architect, Old Basford, Notts.	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Borough Engineer and Surveyor	Grimsby Town Council	400*l.* per annum, increasing to 500*l.*	May 8
*Junior Draughtsman	Metropolitan Asylums Board	2*l.* 2s. per week	do.
*Clerk	Islington Vestry	120*l.* per annum	May 11
*Chief Engineering and Surveying Assistant	Leyton U.D.C.	150*l.* per annum	May 15

Those marked with an asterisk (*) are advertised in this Number. ***Competitions*, p. iv.** ***Contracts*, pp. iv. vi. viii. x. & xxi.** ***Public Appointments*, pp. xviii. xix. & xxi.**

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

April 23.—By ARTHUR BLACKFORD.

Camberwell.—1 and 2, Milkwell-yard, f., r. 54*l.* 10s. £730

By DRIVERS, JONAS, & CO.

Maida Vale.—75, Warrington-cres., u.t. 73 yrs., g.r 2*l.*, e.r. 100*l.* 1,210

By GILBERT & HOW.

Stoke Newington.—120, Bethune-rd., u.t. 77 yrs., g.r. 12*l.*, r. 80*l.* £990

Tottenham.—18, Langham-rd., u.t. 77½ yrs., g.r. 5*l.*, r. 26*l.* 300

By Messrs. KEMSLEY.

Barking, Essex.—9 to 20, Grove-pl., f. (in lots) .. 1,840

Ilford, Essex.—Ilford-lane, a block of building land, 5a. 1r. 25p., f. 3,125

April 24.—By BEADEL, WOOD, & CO.

Fenchurch-st.—Railway-pl., "Bedford's Sandwich Bar" and b.-h., area 900 ft., f. £7,500

Laindon Hills, Essex.—Butler's Grove Farm, 17a. 3r. 11p., f. 1,000

Two cottages, wheelwright's shop, and 4a. 3r. 0p., f. 520

By FULLER, HORSEY, SONS, & CASSELL.

Stratford. — West Ham-lane, The Abbey Mills

Distillery, area 17,000 yds., f., with goodwill, plant, &c. £20,000

By W. G. SHADRAKE.

Woodford Green, Essex. — Fairfield-rd., Rookstone, u.t. 80½ yrs., g.r. 7*l.*, e.r. 42*l.* 460
Theydon Bois, Essex. — Piercing Hill, The Chestnuts, f., e.r. 50*l.* 650

By WALFORD & WILSHIN.

Camberwell.—115 and 117, Blakes-rd., u.t. 63 yrs., g.r. 10*l.* 350

By HEPPER & SONS (at Leeds).

Leeds, Yorks.—Chapel Allerton, "The Mexborough Arms Inn," with smithy, workshops, &c., adjoining, f., area 9,299 yds., f., r. 168*l.* 12,000

By CUMBERLAND & HOPKINS (at Leighton Buzzard).

Linslade, Bucks.—Old-rd., three plots of building land, f. 260
2 to 8 (even), Soulbury-rd., f. 440
48 to 58 (even), Old-rd., f. 310
42 to 52 (even), Wing-rd., f. 1,075
Bossington-av., a residence and 3 a. 1 r. 38 p., f. 350
Bossington-av., meadow and garden land, 2 a. 3 r. 29 p., f. 270
Leighton Buzzard, Beds.—7, 9, and 11, Bridge-st., f., r. 110*l.* 2,250
2 and 5, Bridge-st., area 2 r. 13 p., f. 1,025
13, 15, and 17, Water-lane, f. 250
3 to 9 (odd), Friday-st., f. 280
Plantation-rd., building and garden land, 18 a. 2 r. 19 p., f. 1,575
Heath-rd., two cottages and Pest House Meadow, 3 a. 3 r. 4 p., f. 420
Heath-rd., Broomhill's Farm, 39 a. 2 r. 13 p., f. 2,000
Heath-rd., The Plantation, 6 a. 0 r. 19 p., f. 750
Eggington, Beds.—An enclosure of land, 3 a. 1 r. 33 p., f. 140

By WM. ROLFE (at "Masons' Hall Tavern").

Catford.—Laleham-rd., "The Dartmouth Hotel," f., with goodwill 25,150
Acton.—Gunnersbury-lane, the "Mill Hill Hotel," u.t. 47½ yrs., r. 75*l.*, with goodwill .. 7,970

April 25.—By DYER, SON, & HILTON.

Kilburn.—22, Kilburn-sq., u.t. 24 yrs., g.r. 7*l.*, r. 38*l.* 210

By J. & R. KEMP & CO.

Woolwich, Kent.—406, 408, and 410, Woolwich-rd., u.t. 72½ yrs., g.r. 10*l.* 2s. 6d. 565
694 and 696, Woolwich-rd., u.t. 19 yrs., g.r. 6*l.* 8s. 200

By W. B. MASON.

Stoke Poges, Bucks.—Pinewood and 4 a. 3r. 8 p., f. 4,100

By RUSHWORTH & STEVENS.

Bayswater.—19, Craven-hill, u.t. 34 yrs., g.r. 35*l.* 2,750
Norwood.—Thurlow Park-rd., Ardoch House, f., r. 80*l.* 1,100
Regent-st.—Coach and Horses Yard, area 3,000 ft.; a building lease for 80 yrs., let at per annum 100

By R. TIDEY & SON.

Hoxton.—2 to 8, 11 and 12, Allerton-st., also l.g.r.'s 35*l.* 7s. 6d., u.t. 8 yrs., g.r. 40*l.* 510
De Beauvoir Town. — Hertford-rd., l.g.r.'s 47*l.* 15s., u.t. 18 yrs., g.r. 7*l.* 19s. 9d. 390
City-rd.—47 and 49, Provost-st., u.t. 3¼ yrs., g.r. 7*l.* 10s., r. 78*l.* 105

By WAGSTAFF & SONS.

Barnsbury.—17, Thornhill-cres., u.t. 49 yrs., g.r. 8*l.*, e.r. 55*l.* 470

By DOUGLAS YOUNG & CO.

Clapham.—52, 54, 56, and 58, Sandmere-rd., u.t. 80 yrs., g.r. 31*l.* 10s., r. 160*l.* 1,565
92, 94, 96, and 98, Sandmere-rd., u.t. 80 yrs., g.r. 35*l.*, r. 160*l.* 1,570
Bromley, Kent.—1 to 4, Yates-villas, u.t. 83 yrs., g.r. 12*l.* 460

By MORRIS & PLACE (at Nottingham).

Risley, Derby.—The Risley Hall Farm, 90 a. 0 r. 23 p., f. 4,057
The Risley Manor Farm, 167 a. 0 r. 39 p., f. 8,864
The Manorial Rights of the Manors of Risley and Breaston 200
Breaston, Derby.—The Hood's Meadow, 6 a. 1 r. 36 p., f. 421

By FLEURET, SONS, & ADAMS (at "Masons' Hall Tavern").

Oatlands Pk., Surrey.—Main-rd., the "Flint Gate Tavern," f., with goodwill 6,000

By HARDING, LOW, & HARDING (at St. Albans).

St. Albans, Herts.—Verulam-rd., the Kingsbury Brewery, with residence, and an enclosure of 2¼ acres adjoining, f. 2,100
Verulam-rd., two freehold cottages 360
Branch-rd., a freehold cottage 310
190 and 192, Fishpool-st., f. 200
Victoria st., engineer's shop and plot of land, f. 200
11 to 25 (odd), Albert-st., f. 1,010

By SIKES & FILLINGHAM (at Leicester).

Tilton, Leicester.—A freehold farm, 229 a. 0 r. 35 p. 8,500

April 26.—By COCKETT & HENDERSON.

Stratford.—Romford-rd., The Deanery and nearly 1 a., f. 4,850
Snaresbrook.—Woodford-rd., St. John's Lodge and 1 a., f. 2,700

By R. W. DENVER & CO.

Wadhurst, Sussex.—Great Butts Estate, 198 a. 0r. 37 p., f. 3,500

By H. J. BLISS & SONS.

Wealdstone, Middlesex.—1, 2, and 3, Cecil-villas, f. 1,020
Acton.—Shakespeare-rd., Sunnybank, f., r. 50*l.* .. 850
Horn-lane, Kyre House, f., r. 40*l.* 650
Notting Hill.—257, Cornwall-rd., u.t. 62¼ yrs., g.r. 8*l.* 265
Catford.—44, Davenport-rd., f., r. 42*l.* 750
Stoke Newington.—3, 5, 7, and 9, Prince George's-rd., u.t. 92½ yrs., g.r. 26*l.*, r. 136*l.* 1,400

By FAREBROTHER, ELLIS, & CO.

City of London.—180 and 181, Fleet-st., and 144, Fetter-lane, area 1,550 ft., a building lease for 80 yrs., let at per annum 930
140 to 143, Fetter-lane, area 1,850 ft., a building lease for 80 yrs.. let at per annum 650

By FRANK M. HILBERY.

Hampstead Heath.—6, Denning-rd., f., e.r. 60*l.* .. 830
Limehouse. — 13, Streathfield-st., u.t. 72¼ yrs., g.r. 4*l.* 380

By MANSELL & ROWE.

Streatham. — The Common, Warrington Lodge and nearly 1 a., u.t. 30 yrs., g.r. 14*l.* 1,440

By C. C. & T. MOORE.

Commercial-rd. East.—42 to 52 (even), Watney-st., f., r. 362*l.* 10s. 7,715

Mile End.—5, Nicholas-st., u.t. 30 yrs., g.r. 3*l.* 10s., r. 40*l.* £320
Poplar.—14 and 16, Chrisp-st., f., r. 44*l.* 1,000
Canning Town.—Francis-st., f.g.r. 35*l.*, reversion in 54½ yrs. 665
Francis-st., f.g.r. 10*l.*, reversion in 74½ yrs. 230
Victoria Dock-rd., f.g.r. 20*l.* 10s., reversion in 54½ yrs. 575

By NEWBON, EDWARDS, & SHEPHARD.

Stoke Newington.—Green-lanes, "The Royal Oak Tavern," &c., f.g.r. 35*l.*, reversion in 46½ yrs. 1,610
62, Mildmay Park, f., e.r., 65*l.* 1,000
Clapton —84, 86, and 90, Oswald-st., u.t. 80 yrs., g.r. 15*l.* 420
Highbury.—Bryantwood-rd, f.g.r. 9*l.*, reversion in 99 yrs. 260
Hackney.—1, Horton-rd., u.t. 57½ yrs., g.r. 5*l.*, r. 28*l.* 305
Dalston.—39, Holly-st., u.t. 37½ yrs., g.r. 5*l.* 250
Hoxton.—16, Cropley-st., u.t. 5 yrs., g.r. 5*l.* 10s. 100
Rotherhithe.—35, Clark's Orchard, with stabling and yard, u.t. 6½ yrs., g.r. 12*l.*, r. 45*l.* 135
Stamford Hill.—58, Avenue-rd, u.t. 76½ yrs, g.r. 7*l.* 10s. 190
Streatham.—13 and 21, Buckleigh-road, u.t. 77½ yrs., g.r. 18*l.* 8s. 765
Canonbury.—1A, 1, 3, and 5, Alwyne-villas, u.t. 18¼ yrs., g.r. 15*l.*, r. 103*l.* 630

By PRATT & MARSLAND.

Sydenham.—3, Myrtle-ter., u.t. 50 yrs., g.r. 3*l.* 6s. 8d. 150
29 and 33, Acacia-rd., u.t. 57 yrs., g.r. 10*l.* 265
Battersea.—16 and 17, Corunna-rd., u.t. 43½ yrs., g.r. 6*l.* 510

By SHEPHERD & CATTELL.

Cricklewood.—1 and 2, Providence-pl., Providence Cottage, and two shops adjoining, area 5,650 ft., f. 720
Shepherd's Bush.—146A, Goldhawk-rd., u.t. 46 yrs., g.r. 40*l.*, r. 70*l.* 315

By STIMSON & SONS.

Finsbury.—78 to 84 (even), Clifton-st., u.t. 8½ yrs., g.r. 94*l.*, r. 160*l.* 220
Gray's Inn-rd.—95 and 99, Harrison-st., u.t. 28½ yrs., g.r. 4*l.* 17s. 510
Camberwell.—164, Boyson-rd., u.t. 51½ yrs., g.r. 6*l.* 10s., r. 34*l.* 415
Anerley.—185, Croydon-rd., u.t. 57 yrs., g.r. 7*l.*, e.r. 50*l.* 380
Deptford.—64, Tanner's-hill, u.t. 54 yrs., g.r. 6*l.*, r. 50*l.* 350
Old Kent-rd.—15 and 17, Hatcham-rd., u.t. 60 yrs., g.r. 8*l.* 255
South Lambeth.—6 to 18 (even), Hartington-rd., u.t. 23½ yrs., g.r. 54*l.* 10s. 710
20, 22, and 24, Hartington-rd., and 19, Neptune-st, u.t. 23½ yrs., g.r. 29*l.* 10s. 350
36, 42, and 44, Hartington-rd., u.t. 23½ yrs., g.r. 30*l.*, r. 96*l.* 535
38, Hartington-rd., and 29 and 31, Neptune-st., u.t. 23½ yrs., g.r. 30*l.*, r. 80*l.* 500
Leyton.—Francis-rd., a corner plot of building land, f. 150

By WILLIAM WESTON.

Dalston.—32, Queen's-rd., u.t. 41 yrs., g.r. 8*l.* 15s., r. 38*l.* 400

By HERRING, SON, & DAW.

Regent's Park.—Park-rd., a profit rental of 52*l.* 8s., for 21 yrs. 530

April 27.—By C. RAWLEY CROSS & CO.

Kensington.—92, Addison-rd., f., e.r. 100*l.* 1,255
Shepherd's Bush.—27, Lena Gardens, u.t. 76 yrs., g.r. 5*l.* 10s., e.r. 48*l.* 500

By GREEN & SON.

South Hackney.—307, Victoria Park-rd. and 11A, Annis-rd., u.t. 44½ yrs., g.r. 5*l.* 5s., r. 83*l.* 10s. 730

By E. HOLSWORTH.

Stoke Newington.—18, Osbaldeston-rd., u.t. 76 yrs., g.r. 8*l.* 8s., e.r. 50*l.* 590
79, Cowper-rd., u.t. 80½ yrs., g.r. 7*l.*, r. 36*l.* 360
83 and 85, Cowper-rd., u.t. 80½ yrs., g.r. 13*l.*, r. 64*l.* 625
Woodford.—3 and 4, Fairholt Villas, u.t. 86 yrs., g.r. 8*l.* 8s. 355
Hackney.—37 and 39, Teal-st., u.t. 13½ yrs., g.r. nil 155

By HUMPHREYS, SKITT, & HUMPHREYS.

New Cross.—Nettleton-rd., i.g.r.'s 57*l.*, u.t. 45 yrs., g.r. 24*l.* 500

By LAING, WATERS, & CO.

Strand Green.—30, Gladwell-rd., u.t. 95 yrs., g.r. 6*l.*, r. 36*l.* 360

By A. J. SHEFFIELD.

Stratford.—83 to 91 (odd), Langthorne-st., u.t. 20 yrs., g.r. 15*l.* 360
Limehouse.—211, Salmon-lane, area 4,000 ft., u.t. 42 yrs., g.r. 20*l.*, e.r. 120*l.* 750

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd for yard.

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S. F. H. (Amount should have been stated).

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TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays.* N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

BARNSLEY.—For the construction of police-cells, offices, &c., and alterations to Town Hall, for the Corporation. Mr. J. Henry Taylor, architect, St. Mary's-place, Barnsley.

Bricklaying and Stonemasonry.—
J. & C. D. Potter, Corporation-st. £1,115 0 0
Joinery.—James Smith, Gawber .. 290 0 0
Plastering.—M. Fleming, Eastgate 70 0 0
Slating.—Dawber & Son, Eastgate 35 2 6
Plumbing.—S. Rushforth, Eldon-st. 224 0 0
Ironfoundering. — B. Denison, Regent-st. South 98 0 0
Hot Water Engineering.—B. Denison, Regent-st. South 140 0 0
Painting.—Beaumont Bros., George-yard. 93 0 0

BAXENDEN (Lancs.).—For the erection of the Gladstone Memorial Club and Bowling Green, for the Accrington Liberal Club. Messrs. Haywood & Harrison, architects, Post Office-chambers, Accrington, and Lytham. Quantities by the architects:—

Excavating, Building, and Masonry.
—Hannibal Ramsbottom £893 5 7
Carpentry and Joinery.—Richard Nuttall 297 0 0
Slating.—John Kay 54 5 0
Plumbing and Glazing.—Foden Bros. 130 0 0
Plastering.—Thos. Cronshaw..... 57 0 0
Painting.—John Whittaker..... 25 0 0

£1,456 10 7

[All of Accrington.]

The bowling-green forms no part of these contracts.

BOSTON (Lincs.).—For the erection of offices and store, Boston Dock, for the Boston Deep-Sea Fishing & Ice Company. Mr. W. H. Wheeler, C.E., Boston, Lincs.:—

F. Pattinson ..... £1,437 | Parker & Son £1,225
W. Greenfield ..... 1,280 | J. W. Pinder, Boston* 1,200
S. Sherwin 1,267

BROMLEY (Kent).—For the erection of stable and cottage at Highland-road, for Mr. T. G. Wharton. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington:—

T. Philpot ..... £598 | Lewis Evans £475
Palin & Son..... 568

CARDIFF.—For additions to police station, Roath, for the Corporation. Mr. W. Harpur, C.E., Town Hall, Cardiff:—

Melhuish Bros. £5,060 0 0 | D. W. Davies.. £4,650 0 0
Thomas & Son 4,810 0 0 | W. T. Morgan 4,500 0 0
Geo. Griffiths.. 4,785 5 6 | Chubb & Co.*.. 4,477 0 0
Rees & Thomas 4,719 0 0 | Gerard Hallett 4,340 12 0
Fox & Co. .... 4,679 3 5 | [All of Cardiff.]

CHELSFIELD (Kent). — For the erection of four houses at Green-street Green. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington:—

W. Owen ..... £1,634 | T. Knight..... £1,355
Somerford & Son .. 1,632 | Stebbings & Pannett 1,136
F. Wood 1,412

CHEPSTOW. — For the restoration of the parish church, Caerwent (nave section), for the Rev. W. A. Downing. Mr. G. E. Halliday, architect, Cardiff. Quantities by Mr. J. W. Rodger, 14, High-street, Cardiff:—

Shepton & Son.. £597 6 8 | W. Clarke, Llandaff* £510 5 0
Knox & Wells.. 595 0 0 | J. Jenkins 465 0 0
J. Williams 577 14 0
Couzens & Co... 525 1 9

EAST HAM.—For the erection of eighty-seven double-tenement houses, New Becton, for the Council. Mr. A. H. Campbell, C.E., Public Offices, Wakefield-street, East Ham:—

Leslie & Co., Ltd. ..... £56,982 0 | F. N. Toole & Son £40,746 0
J. W. Jerram .. 55,225 0 | Herbert Bros. .. 37,239 15
Shillitoe & Son 49,982 0 | Surveyor's Estimate 38,580 0
Gregar & Son .. 45,930 0

FELIXSTOWE.—For new offices and agent's residence, to be erected in Hamilton-road, Felixstowe, for the Coast Development Company, Limited, of 33, Walbrook, from plans prepared by Mr. Wilfred J. Hardcastle, architect, 19, Surrey-street, Strand, W.C.:—

Smith & Son..... £2,695 | Everett & Son £2,373
Shillitoe & Son .... 2,664 | Fred. Bennett 2,360
Kerridge & Shaw .. 2,599 | Thos. Ward, Cliff Works, Felixstowe* 2,280
Brown & Son 2,576

HASTINGS.—For the erection of chimney shaft 100 high, near Brede Bridge, for the Corporation. Mr. P. H Palmer, C.E., Town Hall, Hastings:—

Foster & Dicksee, Rugby..... £930

LONDON.—For pulling down and rebuilding "The Jolly Gardeners," Clapham, S.W. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C. Quantities supplied:—

Osborn & Sons ..... £1,947 | T. Welsh £1,860
Courtney & Fairbairn 1,897 | Sheffield Bros.* 1,855
Whitehead & Co. .. 1,875

LONDON.—For additions and alterations to 67, 69, and 71, Southampton-row, W.C., for Messrs. Walter Hill & Co. Messrs. Charles & W. H. Pertwee, architects, London and Chelmsford. Quantities by Mr. Joseph Rookwood, 25, Bedford-row, W.C.:—

Killby & Gayford.... £2,518 | F. T. Chinchen £2,196
Harris & Wardrop .. 2,367 | Stevens Bros. 2,182
Green & Co..... 2,300 | Snewin Bros. 1,989

[*See also next page.*

LIVERPOOL.—For the erection of sanitorium, Birch Hill, near Frodsham, for the Hospital Committee. Messrs. Willink & Thichnesse, architects, 14, Castle-street, Liverpool :—

Holme & Green	£11,850 0 0
W. H. Forde	11,547 0 0
Wm. Nickson	10,778 15 7
C. W. Davenport	10,192 6 9
Henshaw & Sons	10,150 0 0
Brown & Backhouse	9,980 0 0
Morrison & Sons	9,800 0 0
Hughes & Stirling	9,750 0 0
J. Pilkington	9,682 0 0
T. Woods	9,649 0 0
Tomkinson & Sons	9,567 0 0
Beckett & Co.	9,434 0 0
Isaac Dilworth	9,200 0 0
Wm. Hall	8,873 0 0
A. Allen	8,675 0 0
Gerrard & Sons, Swinton*	8,307 0 0

MAIDSTONE.—For the erection of electricity station and destructor house, Fairmeadow, for the Urban District Council. Mr. T. F. Bunting, Borough Surveyor, Fairmeadow, Maidstone :—

Pryor & Co.	£9,000 0 0	Neale & Co. (shaft and flues only)	£3,250 0 0
Wallis & Sons, Maidstone*	8,563 0 0		

Surveyor's estimate, £8,884 2s. 8d.

NEATH (Wales).—For the erection of school buildings, Melincrythan, for the Neath School Board. Mr. J. Cook Rees, architect, Church-place, Neath. Quantities by architect :—

Evan Thomas	£7,588 0	John Davies	£6,662 0
Watkins & Co.	7,107 0	Elias Morgan	6,483 0
H. Billings	6,900 0	John Rees	6,450 0
W. Francis	6,900 0	Lattey & Co.	6,450 0
Marles & Son	6,887 0	David Davies, Cardiff*	5,930 0
Walters & Johns	6,848 0	Lloyd & Tate	5,566 10
Lloyd Bros.	6,700 0		

NORTH CRAY (Kent).—For the erection of twenty-two cottages on the Birchwood-road. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington :—

F. Wood	£7,448	Enness Bros.	£5,998
E. Thorne	6,600	Stebbings & Pannett	5,280
T. Knight	6,429		

ORPINGTON (Kent).—For the erection of five cottages at Chapel-square. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington :—

Somerford & Son	£1,250	T. Knight	£997
Stebbings & Pannett	1,150	E. R. Thorne, Orpington*	940
Smith & Son	1,130		
W. Owen	1,100		

PAIGNTON (Devon).—For the erection of stable, coach-house, &c., Steartfield, for Mr. W. M. G. Singer. Messrs. Bridgman & Bridgman, architects, Bank-chambers, Paignton. Quantities by Mr. Vincent Cattermole Brown, Paignton :—

		Time.
H. Drew	£4,270	10 months.
R. Yeo	4,250	6 ,,
G. Webber	4,000	6 ,,
Dart & Pollard, Paignton*	4,000	3 ,,
W. A. Goss	3,999	9 or 10 months.
R. Yeo	3,997	9 months.
S. Blatchford	3,700	7 ,,
Dart & Pollard	3,875	6 ,,
J. C. & W. Watson	3,850	November 10.

PENZANCE.—For additions to school, Goldsithney, for the Perranuthnoe School Board. Mr. Hy. Maddern, architect, 26, Clarence-street, Penzance :—

J. L. Hosking, Townsend, Hayle*	£247
W. Dusting	247

SHEFFIELD.—Alterations to the "Little Atlas" Inn, Carlisle-street, Sheffield, for the Directors of the Old Albion Brewery, Limited. Messrs. Hall & Fenton, architects, 14, St. James's-row, Sheffield. Quantities by the architects :—

Chas. Roberts	£296 1 10	E. W. Potter	£189 16 0
Bee & Son	234 0 0	W. W. Mears	178 15 0
A. Turner	225 0 0	H. Laidler	176 0 0
C. Earl	212 0 0	J. S. Scanley, Empire-road, Sheffield*	175 15 4
B. Powell	200 0 0		
E. Hancock	194 0 0		

[All of Sheffield.]

SHEFFIELD.—For additions to stable, Stalker Walk, off Pear-street, Sheffield, for the Ecclesall Industrial and Provident Society, Limited. Messrs. Hall & Fenton, architects, 14, St. James'-row, Sheffield. Quantities by the architects :—

Allen & Banks	£276 0	C. H. Gillam	£242 0
Geo. Vaughan	264 19	J. S. Scanley, Empire-road, Sheffield*	220 17
Martin & Hughes	246 0		

STROOD (Kent).—For the erection of "St. Nicholas Parish Hall" and fences round site, Brompton-lane, for the Rev. W. J. Tait and Committee. Mr. E. F. Cobb, architect, 20, High-street, Rochester. Quantities by the architect :—

J. H. Harris	£989	A. P. Finnis	£835
West Brothers	895	Trueman & Son	826
W. Ring	870	W. Coker, Halling*	743

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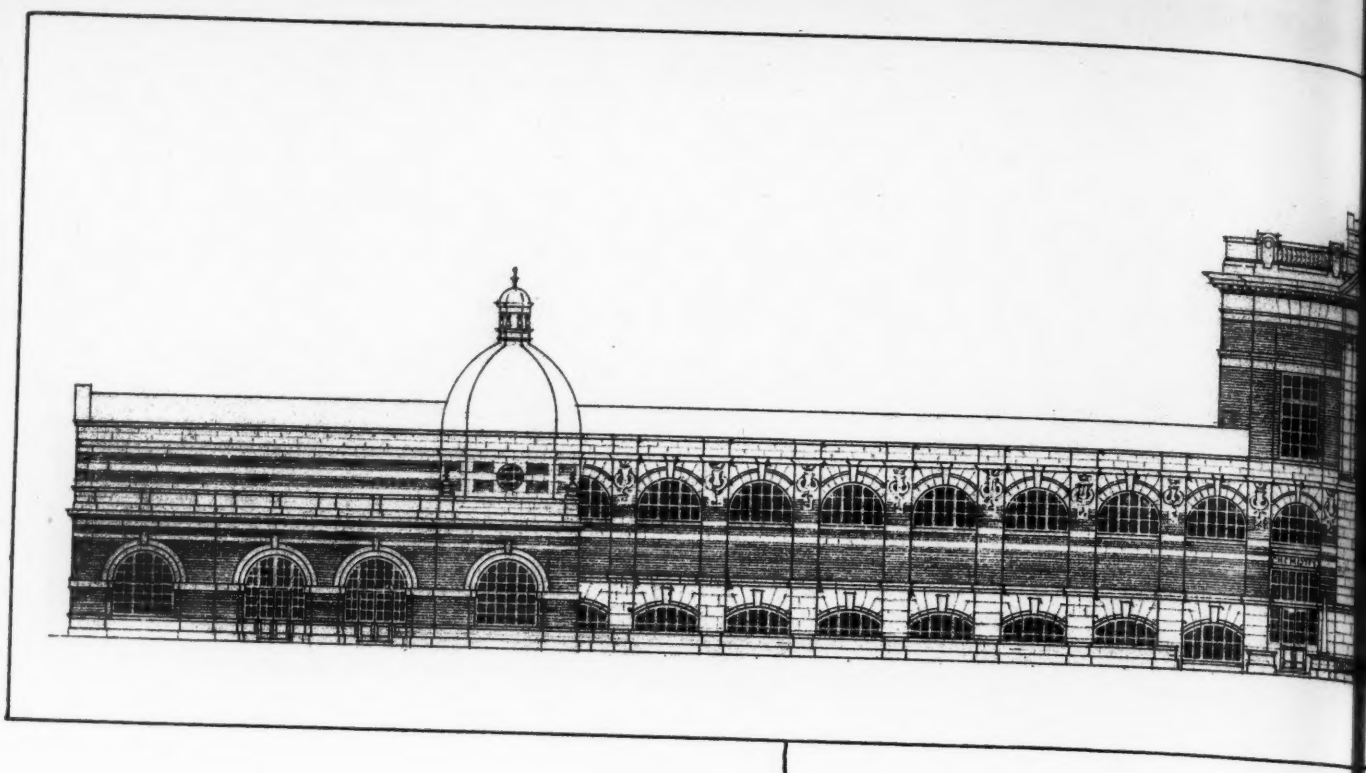

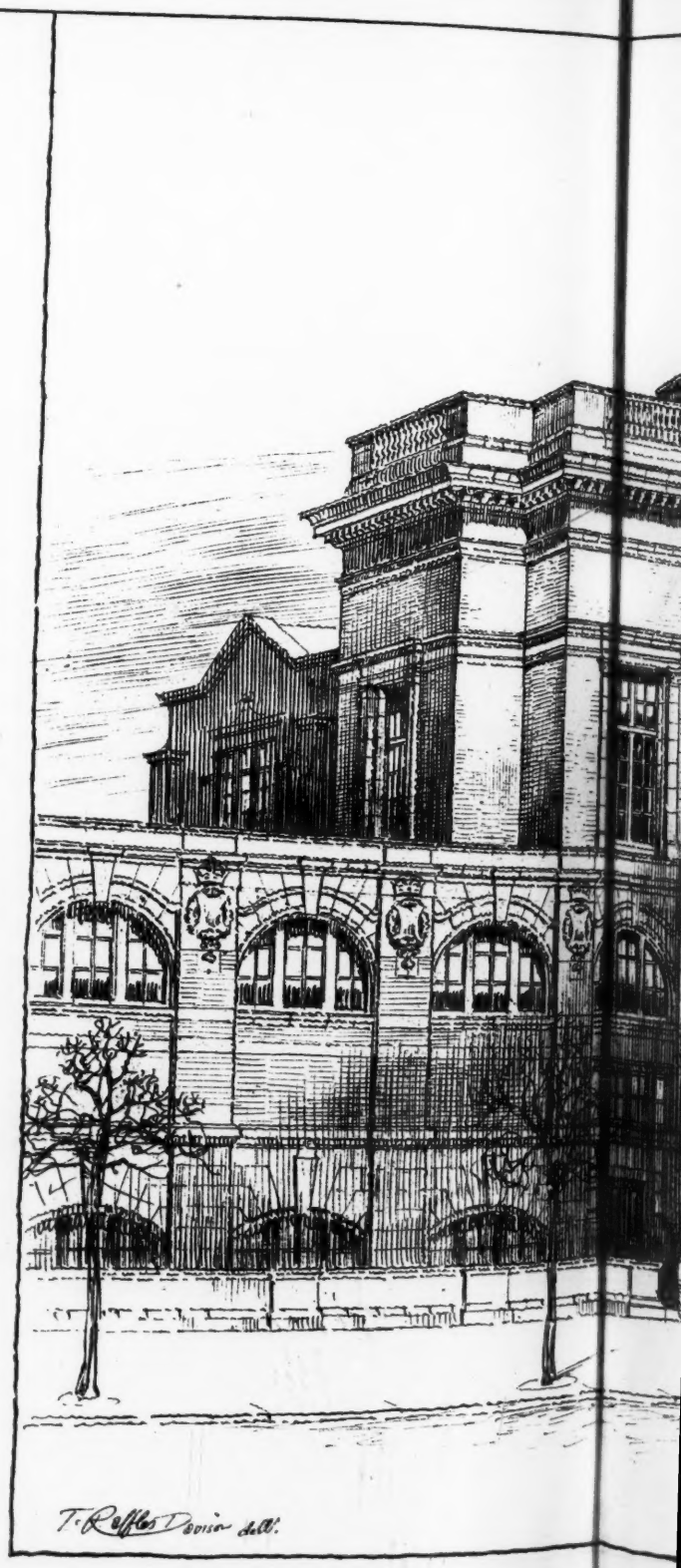

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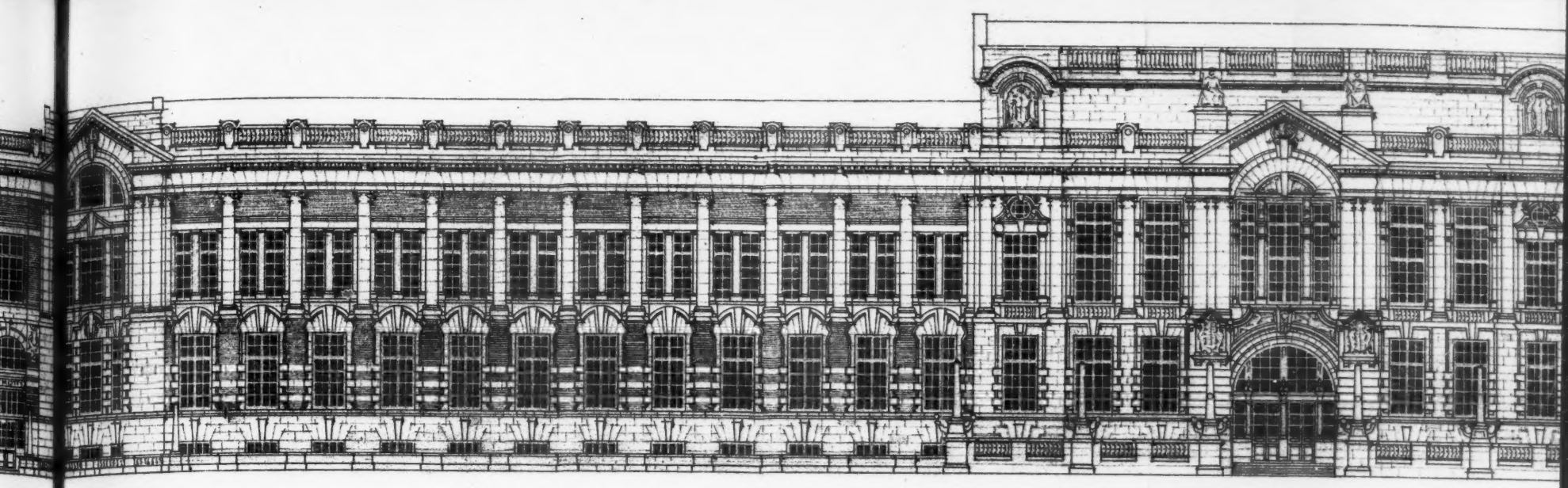

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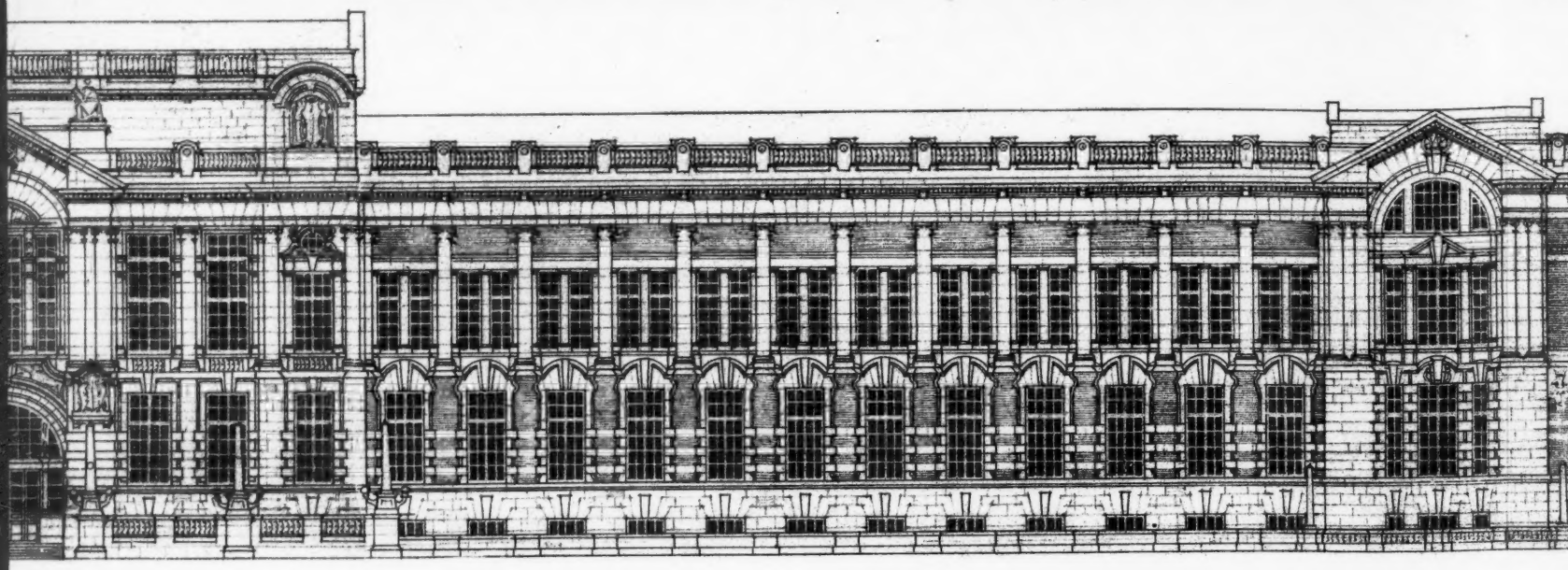
ELEVATION.

PERSPECTIVE VIEW.

NEW BUILDINGS FOR THE ROYAL COLLEGE OF SCIENCE, IMPERIAL INSTITUTE ROAD, SO



TION.

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CTIVE VIEW.

INSTITUTE ROAD, SOUTH KENSINGTON.—Mr. Aston Webb, A.R.A., Architect.

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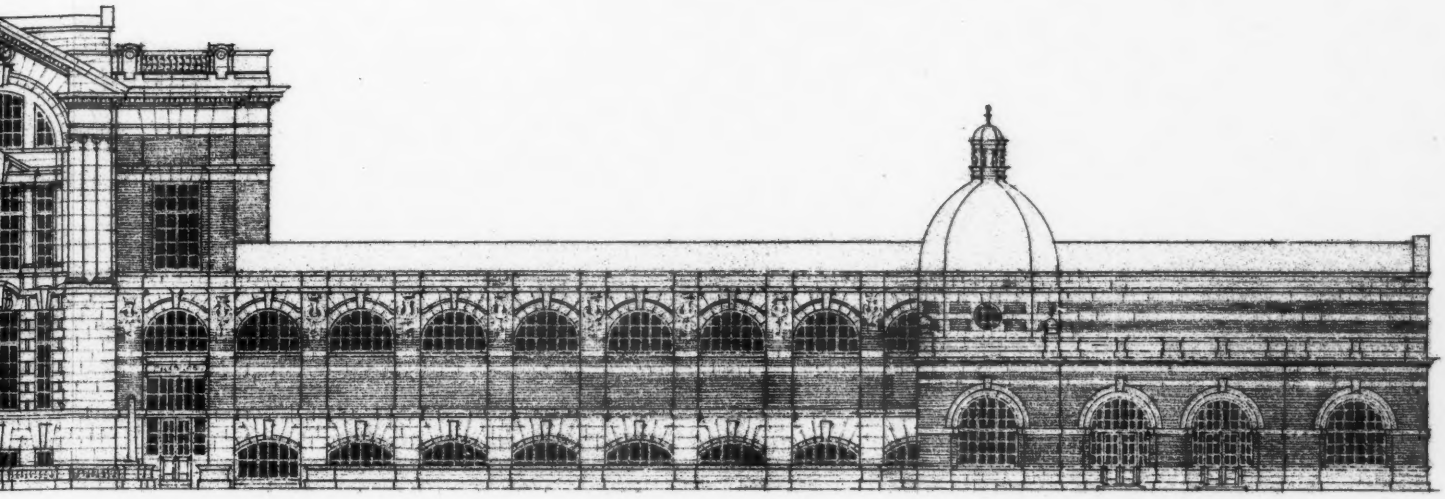
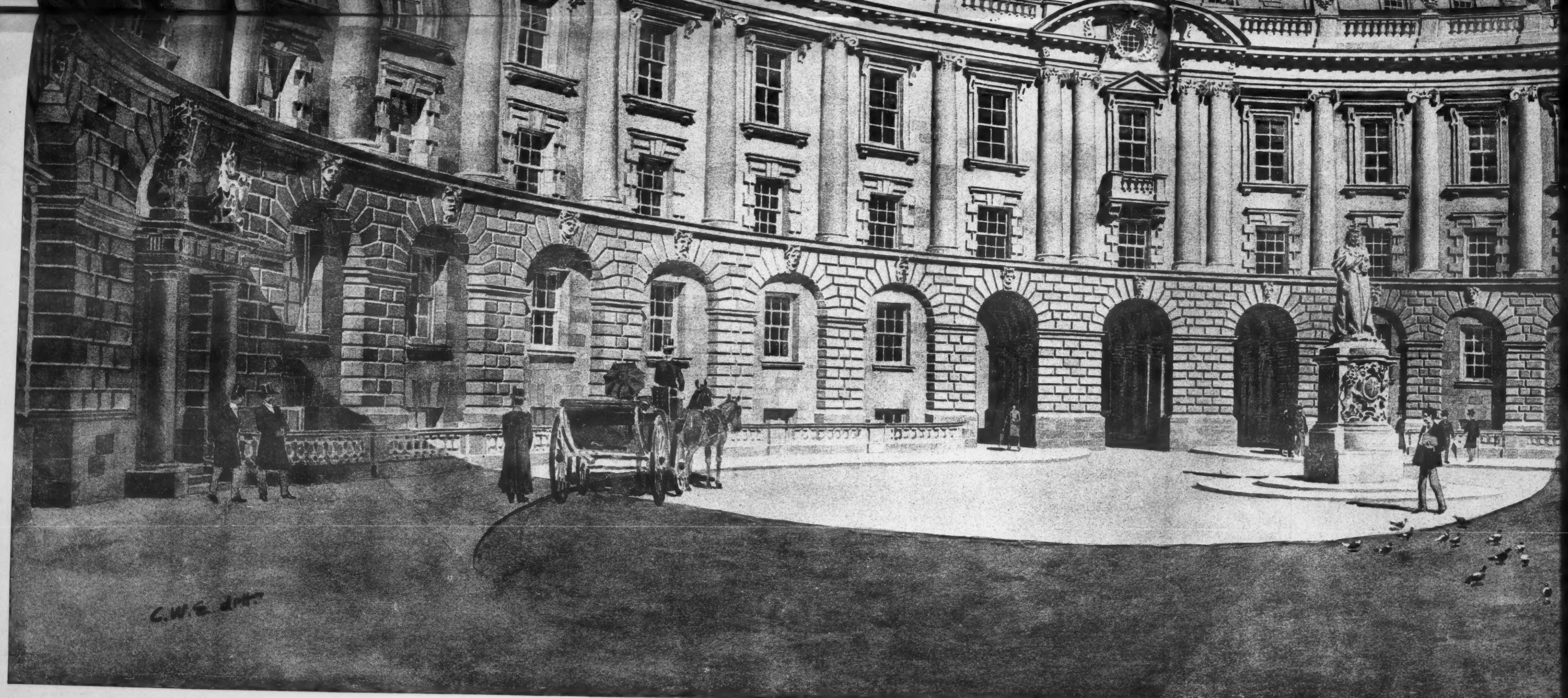
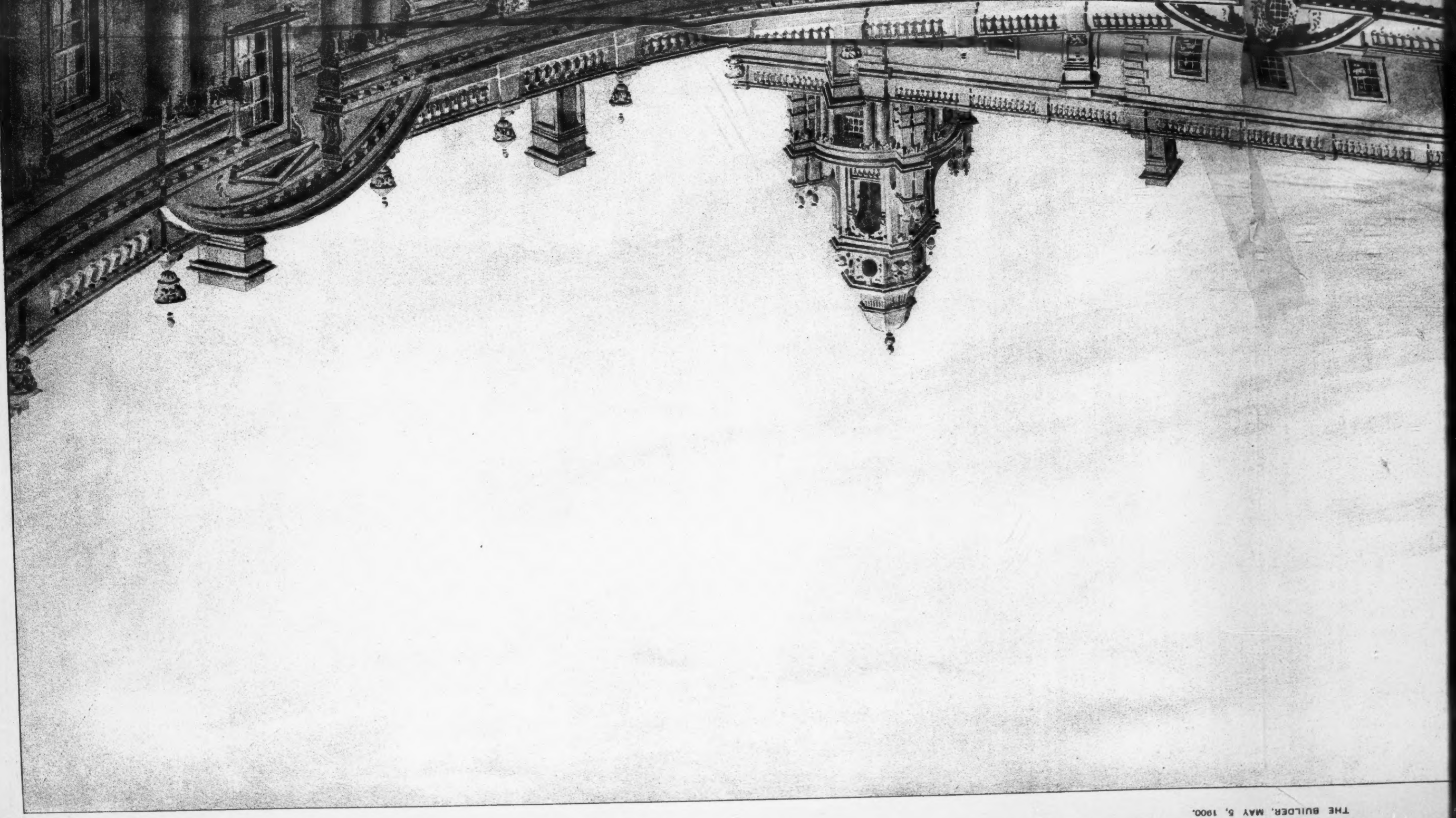
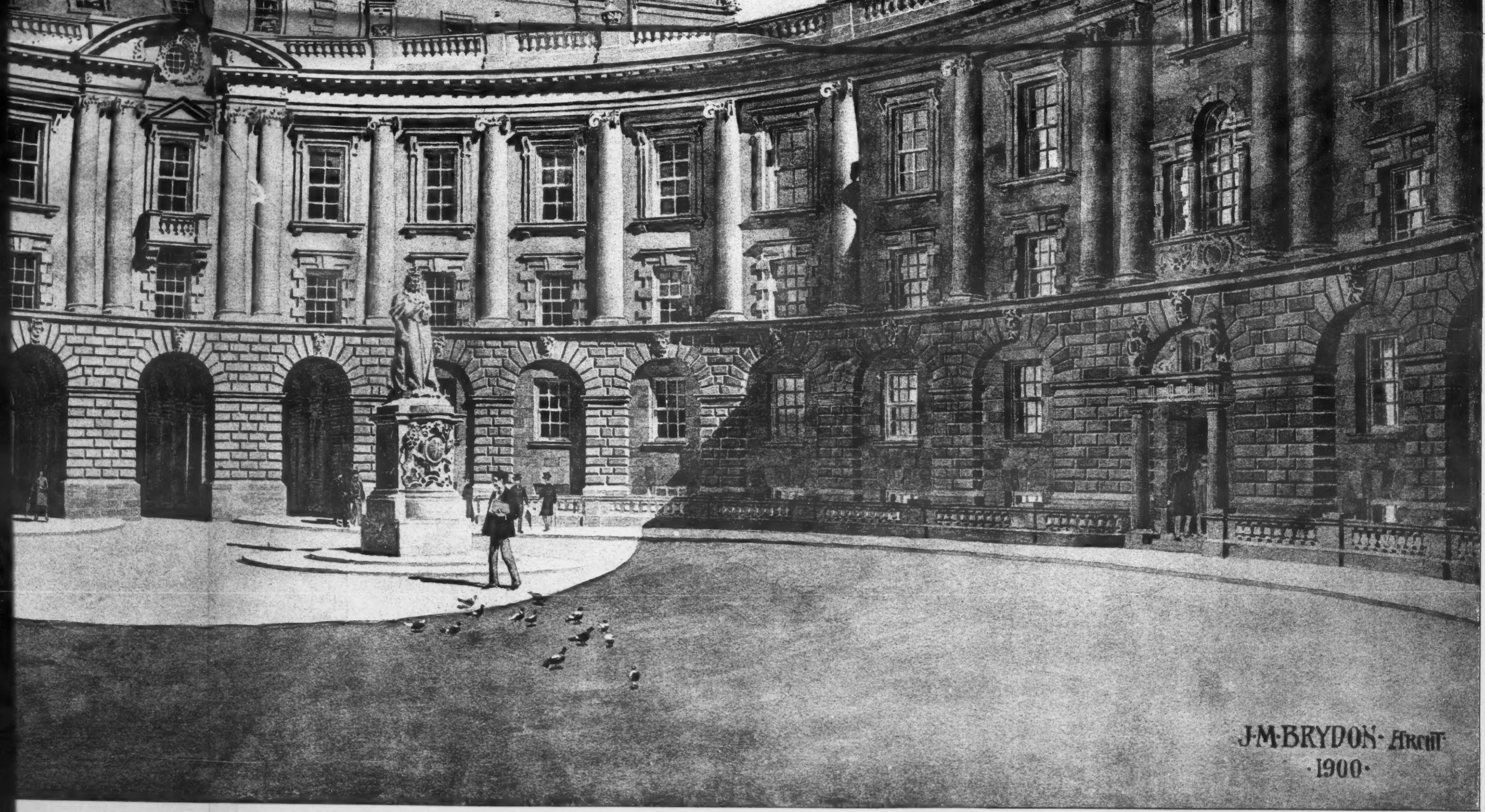


PHOTO-LITHO SPRAGUE & Cº LTD 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.



NEW GOVERNMENT OFFICES, GREAT GEORGE STREET: THE CIRCULAR COURT.—Mr. J. M. Brydon. F.R.I.B.A., A





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T GEORGE STREET: THE CIRCULAR COURT.—Mr. J. M. Brydon. F.R.I.B.A., Architect.

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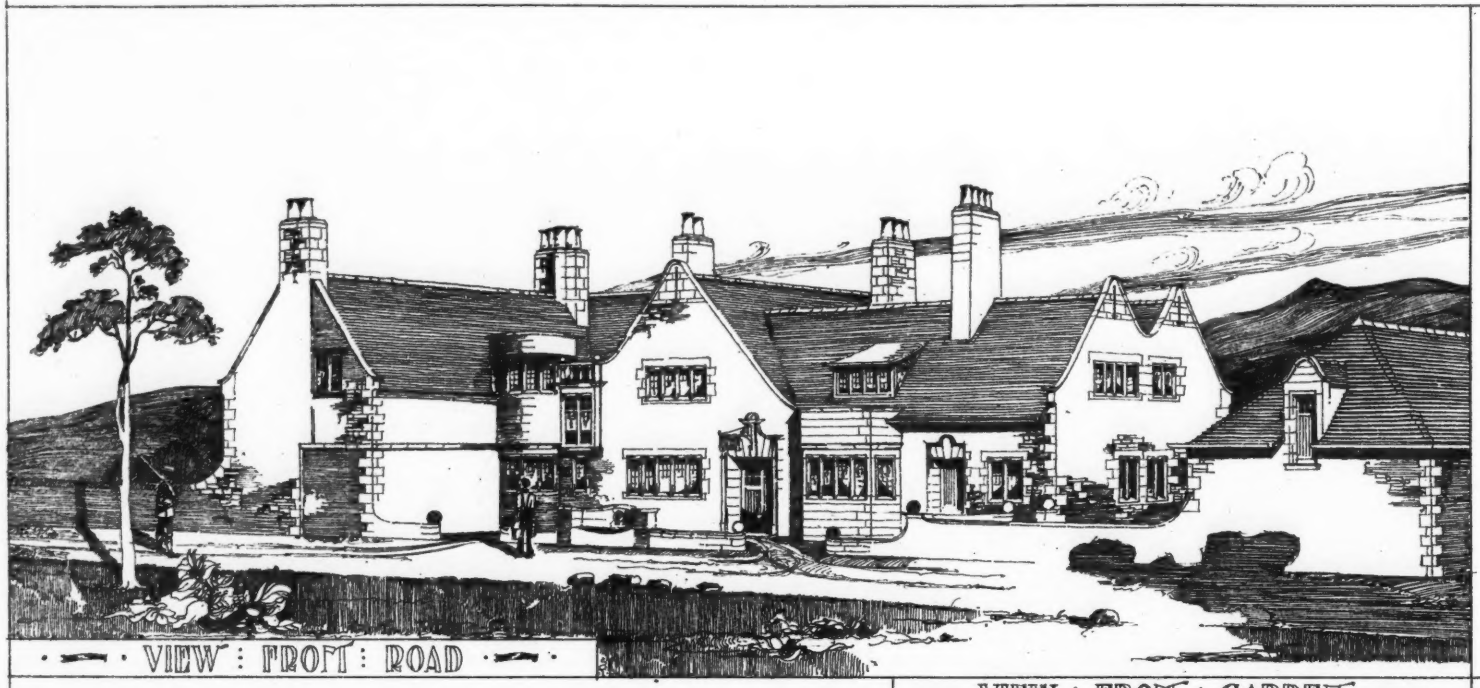
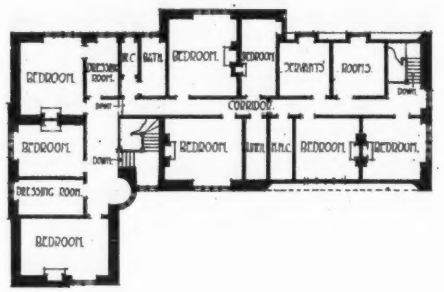
SKETCH FOR A PROPOSED BORDER HFT

Alan E. Inglis. Mrs. of Arch. March 1900.



VIEW FROM ROAD



BEDROOM FLOOR

GROUND PLAN

VIEW FROM GARDEN

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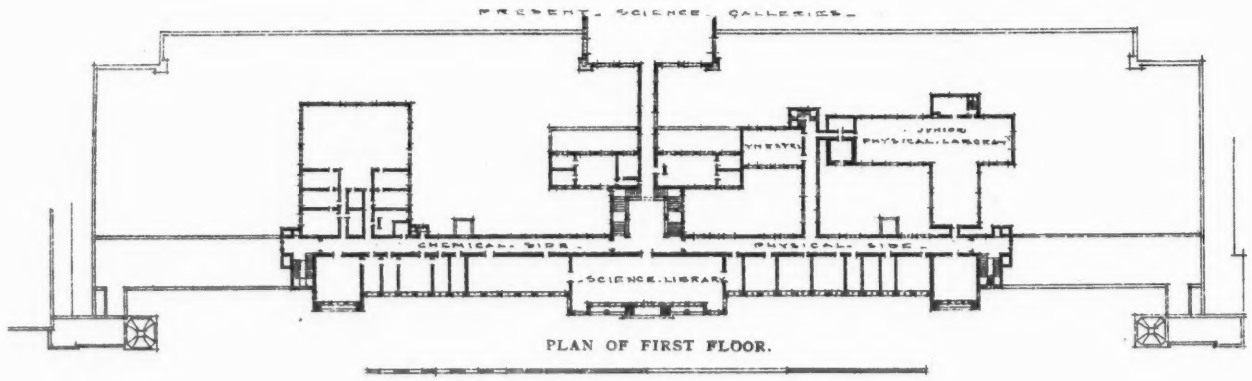
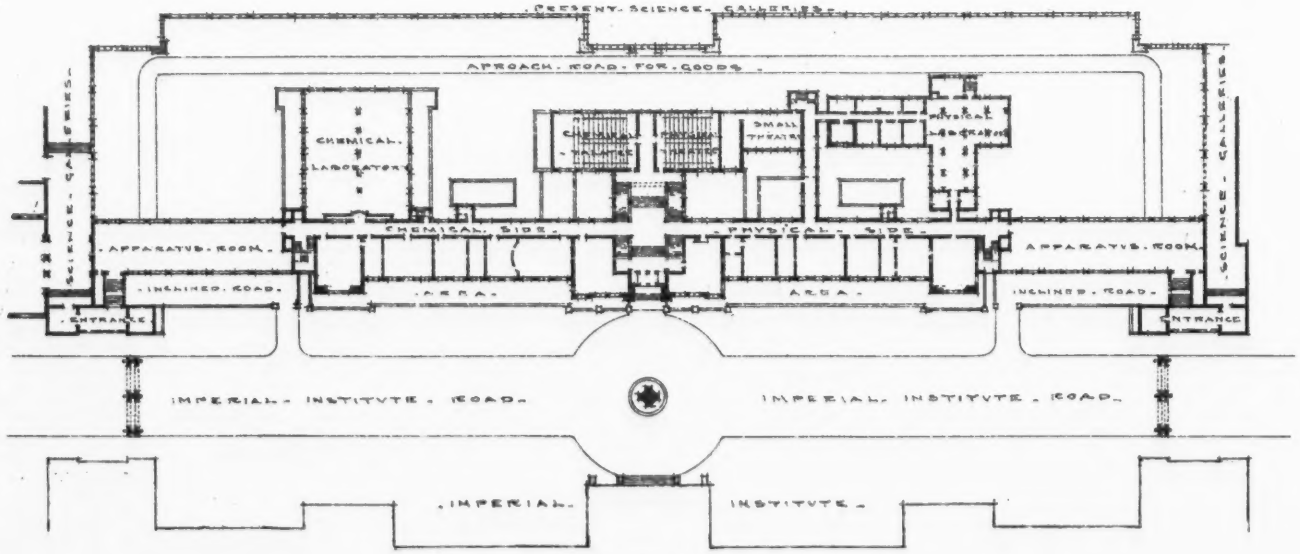
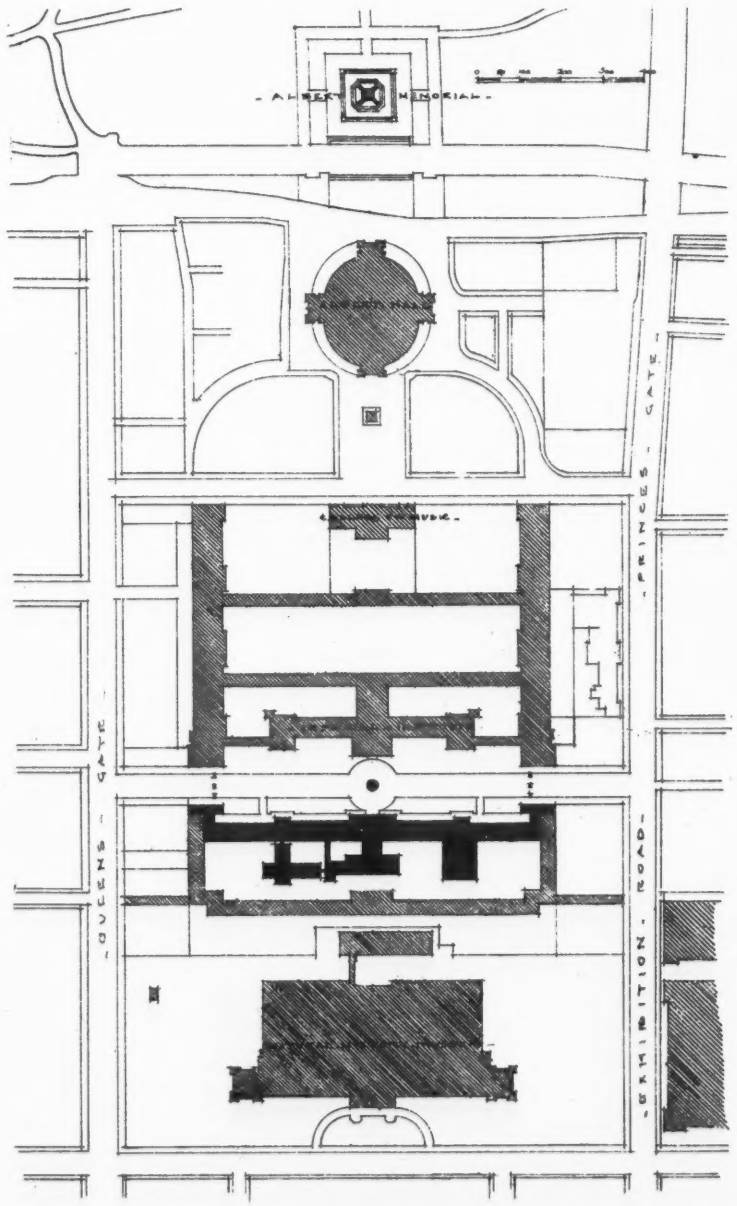


PLAN OF FIRST FLOOR.



GROUND PLAN.



BLOCK PLAN SHOWING POSITION OF
NEW BUILDING AND ARRANGEMENT OF SITE.

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NEW BUILDINGS FOR THE ROYAL COLLEGE OF SCIENCE, IMPERIAL INSTITUTE ROAD, SOUTH KENSINGTON.

MR. ASTON WEBB, A.R.A., ARCHITECT.